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RIGHT-TO-KNOW TRAINING MODULE

A Step-by-Step Guide to the Employee Training Requirements of the Massachussetts Right-to-Know Law

Developed for Managers of Massachusetts State Facilities

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Prepared by Bewick Associates, Inc. for
The Massachusetts Department of Personnel Administration,
Executive Office of Administration and Finance
Commonwealth of Massachusetts
October, 1984

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MICHAEL S. DUKAKIS
GOVERNOR

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE DEPARTMENT
STATE HOUSE • BOSTON 02133

October 18, 1984

Dear Colleague:

You have recently taken on a very challenging and critically important set of responsibilities -- guiding your agency through implementation of our new Right-to-Know Law. Your efforts are important for two reasons. First, employees need to understand the hazards of the chemicals with which they work and how to protect themselves. This information is fundamental to good management and proper respect for employee well-being. Second, the private sector looks to the State as a model on how to properly implement this new law. Your work is therefore extremely important to the Commonwealth, and I commend you for committing so much time and effort.

In order to help you in your task, the Commonwealth is providing this Right-to-Know Training Module. It specifies the training requirements and suggests ways to institute your Right-to-Know training program. It is extremely important that each agency establish its training program, so that we routinely anticipate and responsibly handle workplace hazards. I strongly encourage each of you to read this document and design and implement an ongoing system that fits your particular agency's needs.

I sincerely appreciate your strong commitment to the effective implementation of this important initiative.

Cordially,

Michael S. Dukakis

Acknowledgements

We wish to thank the many people who contributed, beyond the call of duty, to the development of this document. First and foremost are those at the Department of Personnel Administration. Jim Hartnett had the vision creating this document in the first place, and the commitment to make it happen. He and his assistant, Fred Rasmusson, provided the administrative support for this project, allowing us the freedom to concentrate on its substantive content.

Individuals from many agencies volunteered several hours each to read and comment on our first draft. These comments helped us put the work in perspective and better understand our audience. These people represented the Departments of Personnel Administration, Public Health, Labor and Industries, Environmental Quality Engineering, Mental Health, Public Works, and Corrections; the Metropolitan District Commission; and the Massachusetts Bay Transportation Authority. Because of their comments, this final document is dramatically different from -- and better than -- the first draft.

In addition, several individuals outside of state government provided assistance. Diane Hoffman helped draft most of the materials in the last section, and Robert Ruddock at the New England Legal Foundation reviewed the final document. Laurie Kellogg at MassCOSH reviewed the draft and provided numerous useful suggestions. Two organizations -- MassCOSH and National Paint and Coastings Association -- have graciously allowed us to reprint copyrighted materials in Section V.

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SECTION I: GUIDE TO THIS TRAINING MODULE

Each Massachusetts state agency has named one or more Right-to-Know Coordinators to make sure the agency correctly implements the Right-to-Know Law within its facilities. This Training Module is designed to help these Coordinators implement the Right-to-Know Training Requirements, and is a companion to the Employer's Right-to-Know Manual each Coordinator has already received.

This document contains the following materials:

- List of Right-to-Know training requirements
- Suggested Steps for implementing these requirements
- Sample Worksheets to help you document training (yellow pages)
- Optional materials to supplement your training, to give to employees, to give to your trainers, or to make available in each workplace.

How to Use this Training Module:

Agency size, structure, and complexity, and the use of hazardous substances varies dramatically from agency to agency. As a result, there is no single best approach to use when training employees, and when creating a system for developing and implementing training programs. As a result, we recommend that each Coordinator

- Review the Right-to-Know training requirements
- Review the suggested approach to training contained in this Module
- Establish your own internal systems for developing and implementing your training program -- both now and from year-to-year.
- Revise the worksheets in this Module to fit your needs.
- Review the training materials provided, and use them in a manner that best serves your agency

In this document, we have adopted a very broad definition of the word "training" -- written instructions, visual instructions, or any combination of these.

Commonly Used Terms

To make it easier for you to use this Training Module, review the following commonly-used words and phrases and their definitions. For additional definitions, see Section 1 of the Statute and the Definitions section of each set of Right-to-Know Regulations.

DEQE: Department of Environmental Quality Engineering

DLI: Department of Labor and Industries

DPH: Department of Public Health

Employee: Person employed on or after September 28, 1984 who is, or may be exposed under normal operating conditions or foreseeable emergencies to any toxic or hazardous substance in a workplace.

NOTE: We are only concerned with personnel potentially exposed to hazardous substances. "Employees" include (1) those potentially exposed in workplaces agencies control and (2) personnel, like inspectors, who may be exposed to hazardous substances in workplaces they enter as part of their jobs.

Employer: The person or organization responsible for work assignment and work environment of any individual.

Exposure: Any situation arising from or related to the work operation of an employer where an employee may ingest, inhale, absorb through the skin or eyes or otherwise come into contact with a toxic or hazardous substance.

MSDS: Material Safety Data Sheet

MSL: Massachusetts Substance List of Hazardous and Toxic Substances

Right-to-Know Coordinator: Person named by an Appointing Authority (Agency head) to make sure the agency complies with the Right-to-Know requirements

Training Program: The overall system for implementing all of the Right-to-Know training requirements, during the entire year.

Training Session: A single meeting for disseminating information about MSDS, workplace safety, and precautions.

Work Area: An identifiable location within a workplace, where chemicals are handled or stored.

Workplace: Single geographic location of a place of business (public or private).

SECTION II: RIGHT-TO-KNOW TRAINING REQUIREMENTS

Purpose: This section summarizes (1) the statutory and regulatory Right-to-Know training requirements and (2) our recommended approach to employee training. Those already familiar with training requirements should proceed to the next section.

Guide to This Section

Training Requirements II-2

Who to Train?

When to Train?

Contents of Training

Suggested Approach to Training II-4

What are the Law's Training Requirements?[1]

Who to Train?

As a rule of thumb, agencies must instruct all state personnel (01, 02, and 03) who may be exposed to a hazardous substance in a workplace. More precisely, employers must instruct anyone who fits the following definition:

> Personnel employed on or after September 26, 1984 who are, or may be exposed under normal operating conditions or foreseeable emergencies to any toxic or hazardous substance in a workplace.

Because the regulations exempt office supplies, many retail and consumer goods, and many fuels, many state personnel (such as office staff) need not be trained. However, field inspectors may have a right to training. Step 2 in the following section will help you determine exactly who your agency must train.

When to Train?

There are four times when employers must train employees:

1. Initial Right-to-Know Training: All employees on your payroll on or after September 26, 1984 must be trained by December 25, 1984 (practically speaking, December 24 or earlier).

2. Annual Training: All employees must be trained each year (probably each fall, since any changes in the State's regulations will probably be adopted in early summer and take effect each fall).

3. New Employee Training: Each new employee must be trained within 30 days after he is hired.

4. Changes in work assignments: During the year, employers may change work assignments in some way that changes the chemicals an employee "may be exposed to." Whenever one of these changes occur, employers must train employees concerning these new chemicals. The statute and regulations do not specify how long employers have to do this training, but we deduce that it should be done within 30 days (since that is the time allowed before training new employees).

---

[1] For the actually statutory and regulatory training requirements, review Section 15 of the Statute and 441 CMR 21.07 of the DLI regulations.

Contents of Training

- Oral or written instructions.

- Presented in lay language, understandable to the employee.
  NOTE: If an employee doesn't understand English, then make sure he is trained in a language he understands.

- A detailed explanation of employee rights, including
  -- Workplace notice (available from DLI)
  -- Container labelling
  -- MSDS request
  -- Refusal to work with a substance
  -- Protection from discrimination, discipline, discharge
  -- Hearings and appeal procedures
  -- Instruction or training.

- Introduction to a sample MSDS
  -- Name, address, emergency telephone number
  -- Preparer's name, address, and date
  -- List of ingredients and percentages
  -- Health information
  -- Occupational exposure limits
  -- First Aid procedures
  -- Physical data (describing chemicals)
  -- Fire and Explosion hazards
  -- Reactivity
  -- Employee protection
  -- Other regulatory controls.

- Instructions for specific MSDSs, for chemicals used, handled, or stored in the workplace

  -- For each employee, discuss the MSDS for each chemical to which he may be exposed, discussing
     i. chemical and common names
     ii. location within the workplace
     iii. first aid treatment and antidotes
     iv. proper handling procedures
     v. health effects
  -- For these same chemicals, explain how to interpret the labels, including the codes:
     i. Explain the NFPA code: risk ratings, protective clothing, equipment, handling procedures, and use of hazardous chemicals.
     ii. Explain the chronic health codes (C, M, T, and N), found on trade secret labels.
  -- Refer back to map of workplace to help determine what chemicals must be explained to each employee.
  -- Instruction can be for each individual MSDS or for generic categories of substances.

- Training must occur within normal working hours or work shift.

- Keep a record of each employee's training, for the duration of his employment, including
  -- Summary of training program
  -- Dates given
  -- Names of employees trained
  -- Name of person doing the training.

Suggested Approach to Right-to-Know Training

Agencies may adopt any system they choose to train their employees -- as long as they satisfy the right-to-know training requirements. Most of this Training Module focuses on suggestions to help agencies meet these requirements as smoothly and effectively as possible. In general we suggest that you

1. Review the steps and materials outlined in this training module.

2. Establish your own system for implementing the training requirements. Because Massachusetts agencies are so different, we cannot lay out a single organizational system that works well for everyone. We provide some ideas on how you might design such a system, but each agency will have to take what is useful from this document and design its own system.

3. Outline an Annual Training Plan

   Once you know how you are going to make training happen, layout a plan -- who to train, when to train, training contents, safety deficiencies that you want to correct, and a schedule for correcting them.

4. Outline a plan for correcting safety deficiencies.

5. Standardize the contents of your training program throughout your workplace.

6. Create a Training Records System: Put in place a system for keeping track of all your right-to-know training activities.

The following section explains, step-by-step and in much more detail, how to implement a training program. Please remember that these steps represent our suggestions to help you implement the above training requirements.

SECTION III: RIGHT-TO-KNOW TRAINING — START-UP

Purpose: This section outlines steps to design, prepare, and deliver the initial training sessions, by December 24, 1984.

Guide to this Section

Step 1: On-site Review and Preparation — III-2

Review all MSDSs, become familiar with their contents, and group them, where helpful.

Step 2: Institutionalize an Employee Program — III-4

Develop and implement a systematic on-going employee program, which includes these initial training sessions.

Step 3: Prepare Employee Instructions — III-10

Design the overall training program, including agenda, talking points, hand outs, reference materials, and instructions.

Step 4: Test and Revise Instructions — III-15

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Step 5: Make Final Preparations and Announce — III-16

Make final arrangements for actual training sessions.

Step 6: Conduct the Sessions — III-17

Just follow your plans!

Step 7: Record the Training Sessions — III-18

Complete and distribute the training program record forms.

Step 8: Evaluate your Training Sessions — III-19

Review the evaluation forms; change your program as appropriate.

Step 1: On-Site Review and Preparation

Purpose: To become familiar with the contents of MSDSs for your workplace chemicals, and to group them into functional categories for training purposes.

1. Review all MSDSs in your workplace subject to the right-to-know law

   ° Review all of the MSDSs for your workplace. Use the documents in Section 5 below, plus materials in the Employee's Right-to-Know Manual, to help you understand them.

   ° Pay particularly close attention to the following designations:

   -- Has a Chronic Health Effect: If it has a chronic health code designation (C,M,T, or N) on the Massachusetts Substance List it should be so designated on your "Employer's Right-to-Know Substance List," and explained on the MSDS.

   -- Trade Secrets: It will have slightly different information on the MSDS and on the labels. The manufacturer designates the trade secret status and the Department of Public Health denies or confirms it.

   -- Is incomplete, and why: Understand which MSDS are incomplete and why.

   -- NFPA Code Required: Where the NFPA Code is required on the label, you will have to teach your employees how to interpret that code.

   -- Mixtures of chemicals: Substances which are mixtures of chemicals will be more complicated to label and explain. Become familiar with which products fall into this category.

   ° Focus on health information and safety precautions:

   -- Sections on Physical Data, Safety Precautions, and Emergency Response provide valuable information about how to handle the product.

   -- Check for internal consistency: Sometimes the Physical Data suggests different health risks and safety precautions than outlined in those sections. And occasionally the second page for one product has been Xeroxed onto the back of the first page for another product.

2. <u>If helpful, categorize chemicals into generic groups.</u>

The right-to-know law requires that you provide employees with specific information about the chemicals they handle. However, employers may discuss groups of chemicals, where all of these chemicals have similar health and safety information.

° To group these chemicals, first classify them according to their chemical families. The OSHA Form 20 includes a space for the chemical family name of each substance.

° Next, review the specific information on each MSDS for each chemical in the group. Where the health and safety information is practically identical, you may consider those substances in a generic category.

° Third, list all of these chemicals according to their generic groups.

3. <u>List chemicals, by workplace, designating functional categories to help you plan and implement your employee training program.</u>

Using your Chemical Inventory Form and Right-to-Know Substance List, develop some type of concise summary of the MSDS at each workplace where hazardous substances are present. This summary will become a checklist for you when outlining the contents of your training sessions. For example, you might

° use the Sample Workplace MSDS Summary List (Appendix III.1);

° develop your own summary sheet, using our sample as a starting point; or

° record the information on index cards or by computer.

Step 2: Institutionalize an Employee Training Program

Purpose: Develop and implement a systematic, on-going employee training program, to help you satisfy the training requirements of the Right-to-Know Law and to make other safety improvements.

1. Structure your agency's internal system for implementing the training requirements

   ° Put in place an administrative system to implement the training requirement. It should specify

   -- who is responsible for what, at each level:

   -- a process for delegating training responsibility down the line (i.e., who trains whom, to train employees)

   -- how to combine resources within the agency -- supervisors, technical experts, and training experts.

   -- how the actual tuaining program gets developed, revised, decided upon, and implemented.

   ° Options to consider: The layers of bureaucracy involved depends heavily on the size and structure of your agency. Here are a few options to consider:

   -- Coordinator Div. Director Shift Foremen Employees

      Coordinator trains Division Directors, who in turn train Shift Foremen, who in turn train employees. Coordinator decides on the training program form and content.

   -- Coordinator Shift Foremen Employees

      Coordinator trains shift Foremen, who in turn train employees.

   -- Coordinator/Training-Safety Committee Facility Managers Employees:

      Coordinator works with an Ad Hoc Training-Safety Committee to devise and monitor the training program. The Committee could include technical experts, facility managers, union leaders, personnel directors, division directors, etc. The coordinator or his designee could then train the facility managers, who in turn train employees.

-- Coordinator Facility Managers and Trainers/Technical Experts Employees:

Some agencies have Training/Safety Office whose staff could be paired with facility managers or shift foremen to conduct the actual employee training.

° Guidelines

Clearly, there are as many options for structuring your internal system as there are agencies. The system depends on the size of your agency, its structure, your available in-house expertise, and the degree to which you want to delegate responsibilities to other individuals. Whatever system you design, we suggest the following guidelines:

-- Choose trainers close to employees on a day-to-day basis, such as shift foremen or employee supervisors.

-- Provide trainers with technical back-up, where possible.

-- Provide employees and supervisors an opportunity to suggest ways to improve your program and to improve the workplace safety. Use an Ad Hoc Training/Safety Committee, Suggestion Box, monthly meetings, etc.

-- The system should be a permanent vehicle for implementing right-to-know training programs throughout this year and from year-to-year.

-- The system should standardize the contents of the training program throughout your agency.

2. Develop a Training Plan

Using your internal system, develop a training plan that includes the following information. Many agencies may find it convenient to have a plan for each workplace.

° Identify work areas and the chemicals present.

Some workplaces (like hospitals) are made up of many work areas with different chemicals in each work area. Other workplaces (like a maintenance garage) function as one work area, and all employees are exposed to all of the products.

-- Identify work areas in each work place.

-- If a work place has more than one work area, draw a map of the workplace and give each work area an identification (meaningful name, letter, number, etc.).

-- For each work area, list the chemicals present.

-- Attach a key to your map, so someone can understand it twenty years from now.

-- If your workplace is functionally one work area, then just make sure you have a list of chemicals present for that workplace.

° Identify employees to be trained:

-- You are only required to train employees who are, have been, or may be exposed to a hazardous substance on the MSL.

-- Note the location of all substances in your workplace which are subject to the Right-to-Know law: This list includes all of those substances on your "Employer's Right-to-Know Substance List", which excludes (1) exempt substances and (2) those whose concentrations of hazardous chemicals are less than the appropriate thresshold.

-- Identify the employees who are, have been, or may be exposed to one of these substances.

(1) Include 01, 02, and 03 employees
(2) Include temporary employees who will be with you for more than a month
(3) "Exposure" covers routine operations as well as foreseeable emergencies, which may include more employees than those who actually handle a product.

-- Record which employees have to be trained, for which chemicals: Use Form 1 (Appendix III.2.A) or develop your own record system.

-- Identify and keep a record of employees who may be exposed to hazardous substances in fieldwork. Many state agencies have inspectors who may be exposed to hazardous substances in some other workplaces. These employees have a right to some instruction. Use Form 1, or develop your own form.

° Develop an Annual Training Schedule

Your agency will have to routinely review the need for right-to-know training throughout the year, and provide additional training periodically, as the need arises. Thus, we suggest that your agency adopt a schedule that includes:

-- Annual training (probably each fall)

-- Monthly assessments of the need for additional training. Five situations can trigger additional employee training:

(1) You purchased a new chemical,
(2) A manufacturer provides you with a revised MSDS,
(3) You hired a new employee,
(4) You changed the chemicals that an employee handles (either by changing your process or by changing his assignment),
(5) The state revised its regulations.

(Note: in most cases you have only thirty days to conduct additional training when one of these changes occurs.)

Section IV provides step-by-step instructions for each of these situations, and for the annual training session. But each agency needs a routine system for assessing the need to conduct additional training.

° <u>Outline some type of "Safety Encouragement" program:</u>

In some workplaces employees don't take safety suggestions seriously. This laxness may go unnoticed -- until there is an accident or a related illness. Then it is extremely difficult for the employer to demonstrate that he was responsible, unless he has systematically encouraged safety.

It is critically important in any safety program that employers take the lead -- set the example, emphasize safety, reward employees who follow proper procedures. We strongly suggest that employers outline a program to encourage proper handling of chemicals. Consider the following elements that different employers use:

- monthly safety meetings
- random safety checks throughout the workplace
- employee safety bonuses
- periodic safety reminders (newsletters)
- safety goals
- workgroup safety awards.

° <u>Involve your unions, and solicit their support</u>

-- Brief union leaders on Right-to-Know.
-- Explain what you are trying to accomplish.
-- Solicit their support in implementing the training requirements and any other "safety encouragement program" you may have adopted.

3. Develop a Plan for Correcting Safety Deficiencies

The MSDS may recommend safety precautions which your work places do not currently follow. We suggest that agencies identify these deficiencies immediately, and develop a plan for correcting them before the initial Right-to-Know training session. This step will allow your trainers to respond positively when employees review an MSDS and discover deficiencies.

° Review the MSDSs, and identify the safety deficiencies in your workplaces.

For each substance, review the requirements for safety equipment, clothes, and special handling procedures. Compare these recommendations to the provisions in each workplace. Also, assess aspects of your physical plant that might need to be changed (i.e., location of vents or chemical storage, air concentrations of chemicals). Determine actions necessary to correct these deficiencies.

° Outline a plan for correcting the safety deficiencies in your workplace.

-- Divide these deficiencies and proposed correction measures into the following 4 categories:

1. Apparent deficiencies that need not be corrected. Refer to OSHA safety requirements or recommendations by other manufacturers or industrial hygienists, and make sure your conclusion is extremely defensible.

2. Corrections involving no expenditures, which you could implement now.

3. Corrections involving some expenditures, but the funds are already available in the current year budget.

4. Corrections requiring additional funds, either through a supplemental budget or the annual operating budget.

-- Relative importance of these changes:

Rank the relative importance of these changes, based on their impacts on employee safety.

-- Propose a schedule and scheme for making corrections:

Outline a schedule that your agency should follow in correcting these deficiencies.

° Gain support for your plan

-- Solicit support from above: Make sure your agency head is aware of these deficiencies and the kind of information available on the MSDS. Gain his support for your plan (or revise your plan until you get it.)

-- Solicit support from below: There are a variety of mechanisms for soliciting support from managers and employees in the workplace. Consider the following:

1. Ad Hoc Committee of in-house experts
2. Informal discussions with key managers
3. Ad Hoc Committee of your trainers.

4. Institute a Training Records System to document the Right-to-Know training received by each employee.

Employers must keep records of each employee's training for as long as that employee works for him. These records must at least identify the dates, the instruction given, employees trained, and the trainer.

Each agency should build a record-keeping system that documents the following information. Either use the forms provided below, or adapt them to your particular needs.

1. Work area identification (using maps, when helpful).
2. Lists of hazardous substances found in each work area.
3. MSDSs for each hazardous substance.
4. Training Records (See Appendices III.2.A, III.2.B, III.2.C, III.2.D, III.2.E):

   ° Sample Form 1: Employees requiring training.
   ° Sample Form 2, plus back-up materials: Training Session Materials, describing the substantive information disseminated -- both written and oral -- at each training session.
   ° Sample Form 3: Training Session Attendance.
   ° Sample Form 4 (for each employee's file): Employee's record of training he has received.
   ° Sample Form 5: Annual Report on Employee Right-to-Know Training.

Keep a copy of these records at least at each agency. At some point the State may randomly check agencies for compliance with Right-to-Know training requirements, and will ask to see your Right-to-Know training records. It is perfectly acceptable to document training records on other forms or on computer systems -- as long as someone can easily determine whether or not you have complied with the Right-to-Know training requirements.

Step 3: Prepare Employee Instructions

You may need to train programs for one or more of the following groups, depending on how your agency is implementing the training requirements:

1. For trainers (who will train employees)
2. For union leaders, to solicit their support
3. For top management of your agency
4. For employees:

    - those exposed to chemicals in your workplaces
    - those exposed to chemicals in other workplaces (like inspectors).

This step provides generic instructions for employees exposed to hazardous substances in your workplaces, and explains how to set up these training sessions. We suggest you use these materials as a base -- add to them, or delete from them as you see fit, for your various training needs.

1. <u>Prepare an Agenda</u>

    A Sample Agenda is provided at the end of this Section (Appendix III.3.A).

2. <u>Prepare Talking Points</u>

    A sample outline of talking points, consistent with the Draft Agenda, is also provided at the end of this Section (Appendix III.3.B).
    Note: If you change the Agenda, you will also have to change this outline of talking points.

3. <u>Prepare Visual Aids</u>

    We have provided sample visual aids, corresponding to the sections of the Draft Agenda. Make slides or transparencies of those you would like to use in your presentation. If they don't fit your needs, revise them or prepare additional ones. See Exhibits in the Appendix.

4. <u>Prepare Written Materials for Employees</u>

    There are a variety of ways to use written materials:

    - handouts, during the training sessions, summarizing the presentation
    - employee manuals, given to each employee
    - reference materials given to employees
    - reference materials, available for employees to borrow and return from a small reference library in each workplace

We strongly encourage you to provide employees with some written materials which they can review at their leisure. Section 5 of this Training Module contains optional written materials, of different lengths and complexity, which you can choose among for distribution to employees, trainers, or workplace reference libraries.

5. Prepare an Employee Attendance Sheet

Also at the end of this Section, we have provided a sample Employee Attendance Sheet (Appendix III.3.C). You need one sheet per employee, to sign and return at the end of the Training Session, demonstrating that he attended and received the information.

6. Design a Training Session Evaluation

It is critically important to employers that employees understand the information being communicated. Incorporate some evaluation into your training session, to let you know what employees are misunderstanding. At the end of this Section, we include a list of questions which you might consider incorporating into your evaluation (Appendix III.3.D). Choose those that apply to you, and add more that you might think of. Your goal here is to reveal any serious misunderstandings so you can correct them quickly.

7. Choose the instructors

The instructor may be the employer, one of his staff, or an independent third party. If you choose the latter, the person must be registered in advance with DLI, providing DLI

- his name and address
- his qualifications (i.e., demonstrating that he is competent to train your employees)
- a training plan.

8. Schedule the Training Sessions

You must train current employees by December 25, 1984. Be sure to schedule it early enough that you can offer a make-up session to employees who were out sick or on vacation when the first session was scheduled.

The program should take place in your workplace during normal work hours.

9. Attendees and Participants

All staff who may be exposed to a hazardous substance should attend a training session. Consider requiring all managers to attend, even if they may not be exposed.

Consider inviting your right-to-know coordinator to attend, so he has a better idea of any problems you might encounter, and other staff from the office of your agency head.

You may also want to invite some of the following people to participate in your training program:

° The manufacturer: Oftentimes chemical manufacturers welcome opportunities to talk to their customer's employees, to explain how best to handle their products.

° An industrial hygienist: These individuals specialize in workplace hazardous and actions to minimize them. They may be able to help you answer tough questions.

° In-house experts: Some of your own staff may have special technical training on safety aspects of chemicals, and they may be highly regarded by their fellow employees.

10. Points on Communication

Communicating health and safety information to employees can increase anxiety and stress OR it can reduce fears and allay concerns. It all depends on how you present the information. The following tips provide some guidance on how to prevent unnecessary adverse reactions and confusion.

° Present the Information in a Comfortable Environment

Ideally, the information should be provided in the context of an ongoing safety program in the workplace or at a regularly-scheduled staff meeting. If this is not possible, make sure the environment is familiar and comfortable to employees.

° Involve Workers in the training program preparation

Consult with key employees about how to convey the information to others. Discuss your concerns with them and solicit their advice. They may be able to point out areas of concern or questions from employees that you did not anticipate.

° Know your workplace and the chemicals in it

A thorough knowledge of your workplace and the chemicals in it is essential to being able to discuss health and safety information with your employees. You must understand the information in each MSDS, before you can explain it to your employees.

° Present the information in a clear and understandable way

Employees are more likely to be anxious and nervous about unclear or confusing information than about information they understand. The use of examples is often helpful. Common household products can be used to provide examples of corrosive, ignitible, and reactive substances and their associated health effects.

You may want to provide handouts to your employees as you speak so they can easily follow your presentation.

° Provide complete and accurate information

Give your employees the full picture. Don't leave out information because you think it will cause them unnecessary anxiety. If they later find out that you withheld information, they will no longer trust you to provide them with accurate information about other things.

° Be Candid

Be straightforward in your presentation. If you don't know the answer to a question, say so. If something is a trade secret, explain why.

° If you don't know the answer, find out

If an employee asks a question you can't answer, tell him you will try and find the answer for him. Keep a record of all unanswered questions, and report your findings at the next safety meeting or staff meeting (as long as it occurs fairly quickly.)

11. Training for Employees Exposed to Chemicals in someone else's workplace (like inspectors)

Employees who are, have been, or may be exposed to hazardous substances in some other workplace, while working for you, must also be trained. However, since you may not know, in advance, what chemicals they may encounter, provide them the following type of training:

° The same general information concerning Right-to-Know, Employee Rights, MSDS, etc.

° Instructions about what to do before entering another workplace:

1. Ask the workplace manager to identify any hazardous substances that he might encounter at that workplace.

2. For these substance, instructions about what precautions he should take while in the workplace.

3. Request that the workplace manager provide him with the proper protective clothing.

° Instructions about how to receive an MSDS on substances in another workplace.

Step 4: Test and Revise Instructions

Purpose: By this point you have developed draft materials for the training sessions. Test these materials in-house, and revise as appropriate, before finalizing your plans.

1. Schedule and Conduct a Test Run

   Identify a small group of employees -- managers and staff -- who will constructively criticize your training program. Don't choose people who will be intimidated by you or reluctant to comment. Your goal is to identify and correct any "bugs" in your training materials and presentation.

   Schedule and conduct the test run, using all of the people who will be making presentations at the "real" training program. Allow time at the end for discussion and feedback.

2. Revise Training Materials, as appropriate

   Evaluate the criticism at your test run and make necessary changes in your employee training materials, agenda, evaluation forms, and training program presentation.

Step 5: Final Preparation and Announcement

Purpose: Make the final preparations for the employee training program and announce it; keep records of those attending.

1. Schedule the training sessions

   Identify groups of employees exposed to the same substances. Plan one training session per workshift for each workgroup. Schedule the training sessions so that employees may attend during their work shift. There should be a separate program for each work group, corresponding to the types of chemicals used in each work area.

   Schedule the sessions early enough in December so you will still have time to schedule make-up sessions (for those ill or on vacation) before the December 24 deadline.

2. Notify employees of the training sessions

   Draft and distribute a memo to each employee, identifying the time, place and importance of the training session. Require that the employee attend (or notify supervisor in advance if for some reason he cannot attend). Using your list of employees in each workgroup, confirm that each employee receives a notice of the training program (i.e., for example, distribute with his paycheck).

3. Reproduce materials for distribution

   Prior to the training sessions, ask each supervisor to remind employees of the upcoming session and confirm their attendance. Provide each foreman with a list of those employees expected to attend each session.

Step 6: Conduct the Training Sessions

This step needs little explanation -- assuming that all the previous steps have been followed, simply present the information according to your plan.

1. Collect Employee Attendance Sheets

   At the end of each training session, collect each employee's signed copy of his training session attendance sheet. Review the list of employees who were supposed to attend the training program, and determine who missed the session.

2. Arrange for a make-up session

   If any employees missed the training session, arrange for one or more make-up sessions, as is appropriate.

Step 7: Record the Training Sessions

Purpose: Record information about who was trained and the information distributed, so any future questions about your training can be answered quickly and correctly. This step largely implements the process laid out in Step 2.

1. Record your training session, in your master file

   Complete Form 1 and 2 and store the listed information in the Right-to-Know Coordinator's Master File and in each Workplace Manager's own files.

2. Update personnel records

   Complete Forms 3 and 4 for each employee and consultant trained, and attach Form 4 to each person's personnel file. Forward a copy of this information to your personnel director.

3. Complete your Annual Report, Form 5

   Complete Form 5, your Annual Training Report, and forward it to your agency head.

Step 8: Evaluate Your Training Sessions

Purpose: After conducting your training program, evaluate how well you communicated with your employees by assessing what they learned.

1. Prepare and Distribute the Evaluation Form (Step 3)

   Prepare enough evaluation forms for each employee. You could conduct the evaluation orally, but it will be easier to analyze the results and to identify misunderstandings if the evaluation is written. Distribute the forms in one of several ways:

   -- At the close of each training session

   -- As you would any memo

   -- At a prescheduled staff meeting

2. Evaluate the responses

   Determine (1) cases where employees have learned wrong information and (2) cases where they can recall no information.

3. Take additional action, depending on the significance of their misinformation

   In some cases, their misinformation can be corrected simply by distributing a corrective memo; in other cases, it may be necessary to convene another training session in the workgroups affected. Discuss the evaluations with your Coordinator and your Safety Committees, and outline the appropriate corrective actions.

SECTION III: APPENDICES

III.1 MSDS Workplace Summary List

III.2.A Sample Form 1: Employees Requiring Right-to-Know Training

III.2.B Sample Form 2: Instruction Materials

III.2.C Sample Form 3: Training Session Attendance

III.2.D Sample Form 4: Employee Right-to-Know Training Records

III.2.E Sample Form 5: Annual Report

III.3.A Sample Agenda

III.3.B Sample Talking Points

Exhibits: Nineteen Exhibits, corresponding to Agenda

III.3.C Employee Training Documentation Sheet

III.3.D Sample Questions for Employee Evaluation

APPENDIX III.1 MSDA Workplace Summary List

Workplace:_____ Date Prepared:_____

Preparer:_____

Trade Name	MSDS Identification (Chemical Name or MSDS ID Code)	Trade Secret	MSDS Complete	Chronic Health Code		Labeling Requirements		Workarea Location	Generic Category
				on MSL?	explained on MSDS?	NFPA Code?	Chronic Health Code?		

APPENDIX III.2.A

Sample Form 1: Employees Requiring Right-to-Know Training

Agency:_____ Date:_____

Workplace Name:_____

Workplace Location:_____

	Work Area Location	Position Identifications	Number of Employees	Instructions Identification [1]	Employee Names
Group A: Those having exposure in your workplace					
Group B: Employees (like inspectors) exposed in the field in someone else's workplace					

1 Identify the instructions communicated

APPENDIX II.2.B

Sample Form 2: Instructions Materials [1]

Complete this form, providing information about each training session, and attach materials explaining what information you actually disseminated. Use the following checklist to help you think of materials to attach.

Instruction Materials Identification Code:[2] _____

Checklist of instruction materials (copies attached)

_____ Agenda

_____ Instructor's Talking Points

_____ Visual Aids used

_____ List of MSDSs explained

_____ Work Area Identification (map, if appropriate)

_____ Form 3: Training Session Attendance Sheet

_____ Other Handouts (List)

_____

_____

_____

How Disseminated?

° By Training Session Date/Time: _____

Location(s): _____

Work Areas Affected: _____

Instructor Name: _____

Affiliation: _____

Position: _____

° Other Date: _____

Method: _____

Agency: _____ Date completed: _____

Workplace Name: _____

Location: _____

1 Refers to instructions communicated, through a training session and/or written instructions.

2 Develop some code identifying this packet of instructions.

APPENDIX III.2.C

Sample Form 3: Training Session Attendance (or Receipt of Instruction)

Training Session

Date and Time: _____

Location: _____
(by work area, if more than one in a workplace)

Instructor (if any): _____

Instruction Material Identification: _____

Attendance Record:

	Employee Name	Employee #	Work Area Location	Program Identification
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				

Employee No.: Schedule position number.

Work Area Location: Locator code used to identify unique training requirements of the workplace.

Instruction Material Identification: Identifies the specific instructions communicated to each employee. Corresponds to the identification code on Form 2

Agency: _____ Date: _____

Workplace: _____

Location: _____

APPENDIX III.2.D

Sample Form 4: Employee Right-to-Know Training Records, for Employee Personnel File

Employee Name: _____

Employee's Position No: _____

Workplace Location: _____

Record of Right-to-Know Training

	Date	Identifier[1]	Trainer[2]	Work Area Location	Method[3]
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

Note: Keep in each employee's who personnel file. Attach "Employee Training Documentation Sheet", collected after each training session or distribution of instructions.

---

[1] Identifies the specific instructions communicated to this employee. Corresponds to identification code on Form 2.

[2] If instructions communicated by a training session.

[3] Method for communicating instructions: (1) by training session; (2) by distributing written materials; (3) both.

Agency: _____ Date: _____

Workplace: _____

Location: _____

APPENDIX III.2.E

Sample Form 5: Annual Report on Employee Right-to-Know Training

1. Total number of employees who need training under the Right-to-Know Law, as of December 31 each calendar year.

   Group A: On-site Exposure: _____

   Group B: Exposure off-site, in other workplaces: _____

2. Total number of employees who actually received training during the calendar year, and identify the training program received.

	Number	Training Session ID
Annual Programs:		
_____		
_____		
_____		
OTHER:		
_____		
_____		
_____		

3. Dollars requested for:

   A. Training:
   B. Safety equipment:
   C. Capital modifications to improve workplace safety:
   D. Personnel to implement safety program:

Agency: _____ Date: _____

Workplace: _____

Location: _____

APPENDIX III.3.A

Sample Agenda: Right-to-Know Training Session

I. Introduction

A. What is the Right-to-Know Law

B. Participants

C. Employer's Basic Steps

D. Employee's Rights

II. Generic Background Information

A. What is Hazardous

1. The Massachusetts Substance List
2. Optional: Exempt Products
3. The Material Safety Data Sheet

B. Optional: Potential Health Problems, from improper handling of hazardous substances

III. Employee Protection and Access to Information

A. How to Get an MSDS

B. Understanding Labels

1. Chemical Identifiers
2. NFPA Code

C. Additional instruction during the year

D. Optional: Employer's Safety Program

IV. Specific Information About Workplace Chemicals

A. Optional: Categories of workplace chemicals

B. Specific MSDSs, for hazardous substances to which employees are, have been, or may be exposed. Emphasize:

i. Chemical, common names
ii. workplace location
iii. first aid treatment and antidotes
iv. proper handling procedures
v. health effects

C. Labels

V. Attendance Record

VI. Evaluation

APPENDIX III.3.B

Sample Talking Points: Right-to-Know Training Session

The following talking points follow the Sample Agenda above. The Agenda entries are repeated here in bold type. Note that some of these sections are optional -- delete what you don't want to use, and make the talking points fit your agenda and your particular needs.

I. Introduction

A. What is the Right—to—Know Law? Exhibit I.A. (1) & (2)

Information:

Information:

- State develops a Massachusetts Substance List (MSL) of all 1600 chemicals subject to the law.
- Employers collect Material Safety Data Sheets for each product in their workplaces subject to the law. They must distribute them to the State and, on request, to employees.
- Municipal Coordinators must respond to residents' complaints and information requests.
- Employers must label chemical containers.
- Employers must train employees to handle chemicals on the MS.

B. Participants Exhibit I.B

Agencies:

1. Department of Public Health (DPH)
   a. Develops MSL
   b. Health effects information
   c. Determines trade secrets
2. Department of Environmental Quality Engineering (DEQE)
   a. Collects and stores MSDS
   b. Reviews determinations by municipal coordinators
3. Department of Labor and Industries (DLI)
   a. Administers employee grievance process
   b. Enforces employee access to information

Others:

4. Community residents -- may request an investigation of a workplace if have reason to believe a product used there may be endangering public health.
5. Employees -- have the right to know what hazardous substances are present in the workplace and the health effects associated with them.

   DEFINITION OF EMPLOYEE: only those exposed to a toxic substance (may exclude secretaries and clerical personnel)
   (a) collective bargaining agent access to MSDS
   (b) physician access to information
6. Employers

C. Employer's Basic Steps

Exhibit I. C

Step 1: Inventory Chemicals in your workplace
Document all chemicals present. For each, note its location and your distributor.

Step 2: Get the current MSL
Contact the Secretary of State's Office and the State Book Store for an updated list.

Step 3: Get the MSDS for each of your chemicals
Get an MSDS for each of your chemicals, from your distributors.

Step 4: Compile an Employer's Right-to-Know Substance List
Compare your chemicals to those on the MSL, and compile a list of substances subject to this law.

Step 5: Review the MSDS for Completeness
Review each MSDS; if one is incomplete, ask your distributor for a revised one.

Step 6: Make the MSDS Available
Send DEQE a copy of each MSDS. Store MSDSs in a central location for 30 years; give them to employees on request, within four days.

Step 7: Label Containers BY SEPT. 26, 1984
Label containers with a Chemical ID and the NFPA code.

Step 8: Train Workers BY DEC. 25, 1984
Train current workers to use MSDSs, read labels, and handle substances; document training.

D. Employees Rights

Exhibit I. D

° Workplace Notice:
-- List of employee rights
-- Posted in a central location in the workplace
-- In a language employees understand

° Training:
-- Annually
-- New Employees: within thirty days from date of hire.
-- Verbal or written instruction
-- Content: Employee Rights
MSDS, in general
Specific MSDSs, for chemicals employee might encounter
Protective clothing and procedures
Labelling of substances with chronic health effects
-- Conducted on employer's time, by competent individual
-- Presented in lay language, understandable to employees
-- Record training

° Material Safety Data Sheets (MSDS)
-- Employee may obtain his own copy
-- For substances to which he is, may be, or has been exposed
-- Within four working days of request, employees should get either the MSDS requested or correspondence showing employer's diligent effort. If neither are available, employee may refuse to work with that substance, unless he performs an "essential service".

° Labelling:
-- Except for small containers, all vessels must have chemical identifier and NFPA Code where applicable
-- Mixtures must list all hazardous substances
-- Trade secret containers may omit chemical name, but add MSDS ID Code and Chronic Health Code (if applicable).
-- Labels must be clear.

° Non-discrimination
-- Employer can't discharge, discipline or discriminate against an employee for exercising his rights.
-- If an employee suspects his rights have been violated, he has 180 days to file a complaint with the Commissioner of DLI.

II. Generic Background Information

A. What is Hazardous?

1. The Massachusetts Substance List — Exhibit II.A.1(a)

° 1600 Chemicals on the Massachusetts Substance List

° The list includes:
-- Chemical Abstract Service (CAS) numbers
-- Chemical names (including some synonyms)
-- Source list origin (one of which tells you if the NFPA Code applies)
-- Chronic health codes: chemicals considered or suspected to be
C Carcinogenic (cancer)
N Neurotoxins (nervous disorders)
T Teratogenic (birth defects)
M Mutagenic (mutations)

° The MSL arranges the chemicals, in alphabetical order, by chemical name.

2. Optimal: Discuss Exempt Products — Exhibit II.A.1(b)

3. The Material Safety Data Sheet — Exhibit II.A.2(a)

° The MSDS is the foundation of the Right-to-Know Law:

° It describes the chemicals used, their health risks, how they should be handled, and emergency responses.

° Many MSDS use the OSHA Form 20. It can be in any form, as long as it contains the following information:

Chemical Identifiers: Usually the chemical name and Chemical Abstract Service (CAS) Number for each hazardous substance. If it is trade secret, it will have an MSDS ID Code.

Hazards: Specifies if the chemical is flammable, explosive, corrosive, or reactive. Many labels will contain this information.

Health Risks: This is one of the most important categories, but often the most poorly prepared. It describes routes of exposure and effects:

1. Acute effects: symptoms occurring immediately after a single exposure, such as skin irritation, burning, poisoning, nausea, or shortness of breath.

2. Chronic effects: symptoms occurring slowly, over a long period of time, or which recur frequently. These include cirrhosis, emphysema, and irreversible damage to human organs, as well as mutations, cancer, birth defects, and nervous system disorders. Whenever the MSL includes one of the following Chronic Health Effects Codes by a chemical name, the MSDS for substances containing that chemical must describe that type of chronic health risk:

C	Carcinogenic:	Capable of producing cancer in mammals (which may not mean humans)
M	Mutagenic:	Capable of altering the genetic materials in a living cell
T	Teratogenic:	Exposure of a pregnant female to this substance can result in malformations in the fetus
N	Neurotoxin:	Causing permanent damage to the nervous system (the brain and spinal chord)

Measures to Minimize Hazards and Health Risks: Specifies precautions, handling practices, and protective clothing for employees, necessary to minimize their risks.

Emergency Treatment: Outlines actions to take (or to avoid) in case of an emergency involving the chemical, including an emergency number to call.

° **Optional** **Exhibit II.A.2(b)**

1. Walk through a sample MSDS, explaining it in detail, consider using either the MassCOSH or Shell MSDS Users Guide,
2. Explain specifics as you walk through your specifc MSDS, from your workplace, or
3. Provide employees with an MSDS Users Guide, for them to review when they want.

° What should be done in an emergency involving chemical exposure?
  (a) do not panic; prevent further exposure
  (b) if inhalation exposure, move victim to fresh air and loosen tight clothing
  (c) contact a doctor or poison control center
  (d) if ingestion exposure, follow directions of poison control center
  (e) if eye or skin exposure, flush with cold water
  (f) conserve body warmth
  (g) do not attempt to treat convulsing or unconscious victim
  (h) do not search for an antidote

III. Employee Protection and Access to Information

A. How to Get an MSDS — Exhibit III.A

° Review MSDS Request Form
° Expalin how to complete it and
° Explain the process for getting the MSDS

B. Understanding Labels — Exhibit III.B. (1)

° An employer must label vessels containing substances on the MSL
° Exceptions--exempt if container is
  (a) very small
  (b) already labelled, according to certain federal statutes
  (c) a transfer vessel
  (d) holds different substances throughout the day.
° Labels contain two types of information

1. Chemical Identifiers — Exhibit III.B. (2)

For non-trade secrets: Chemical Name or names
For trade secrets: MSDS ID Code
Chronic health code, if applicable

Stress that the *C* code includes suspected carcinogens, as well as known carcinogens. Must review the MSDS to know for sure.

2. NFPA Code, if applicable, on larger containers — Exhibit III.B. (3)

* National Fire Protection Code
* Explain using Exhibit #.

C. Additional Training and Instruction

° Employees will reveive regular instruction whenever there is a change in the chemicals they handle or the employer receives a revised MSDS.

° An MSDS must be complete and up to date
° An employer relies on his supplier for MSDS
° Exceptions to MSDS requirements
  (a) Trade Secrets
      --MSDS need not include chemical name, common name, or CAS number but must include all other information.
      --Dept. of Public Health may rule substance is not a trade secret
  (b) Mixtures
      --Not subject to Right-to-Know Law if hazardous constituent under a certain threshold

B. OPTIONAL: Understanding Health Effects of Chemical Exposure

Exhibits II.B. (1), (2) & (3)

° How do adverse health effects from chemicals occur?
Need:
(a) chemical
(b) person
(c) exposure

Stress Fact That Only Exposed Employees Are Subject To Law

° What types of chemicals may cause adverse health effects?
(a) ignitible
(b) corrosive
(c) reactive
(d) toxic

° What factors determine whether a given individual will develop an adverse health effect from chemical exposure?
(a) age
(b) sex
(c) activity and stress level
(d) overall health status

° What are the ways in which a person may be "exposed" to a chemical?
(a) skin contact
(b) ingestion
(c) inhalation

° What types of health effects can occur from exposure to chemicals?
(a) acute -- short-term (examples--rashes, nausea, vomiting)

D. Optional: Employers's Safety Program

At this point, describe your own safety program or other efforts to improve employee safety.

IV. Specific Information about Workplace Chemicals

A. Optional: Categories of workplace chemicals

If you have divided your chemicals into generic categories, describe these categories

B. Information from specific MSDS, for hazardous substances to which employees are, have been, or may be exposed.

° Review each MSDS or category of MSDSs
° Communicate at least the following information:
  i. Chemical, common names
  ii. Workplace location
  iii. First aid treatment and antidotes
  iv. Proper handling procedures
  v. Health effects--acute and chronic

C. Labels for those substances, if have NFPA Code or Chronic Health Code.

V. Attendance Record

° Employer must keep record of Right-to-Know training and instruction. Goes in each employees file, as long as he works here.
° Distribute Attendance Record sheet, ask employees to sign it, and collect them before people leave.

VI. Optional: Training Evaluation

° Conduct evaluation--written or oral
° If written, collect completed forms before people leave.

WHAT IS THE LAW?

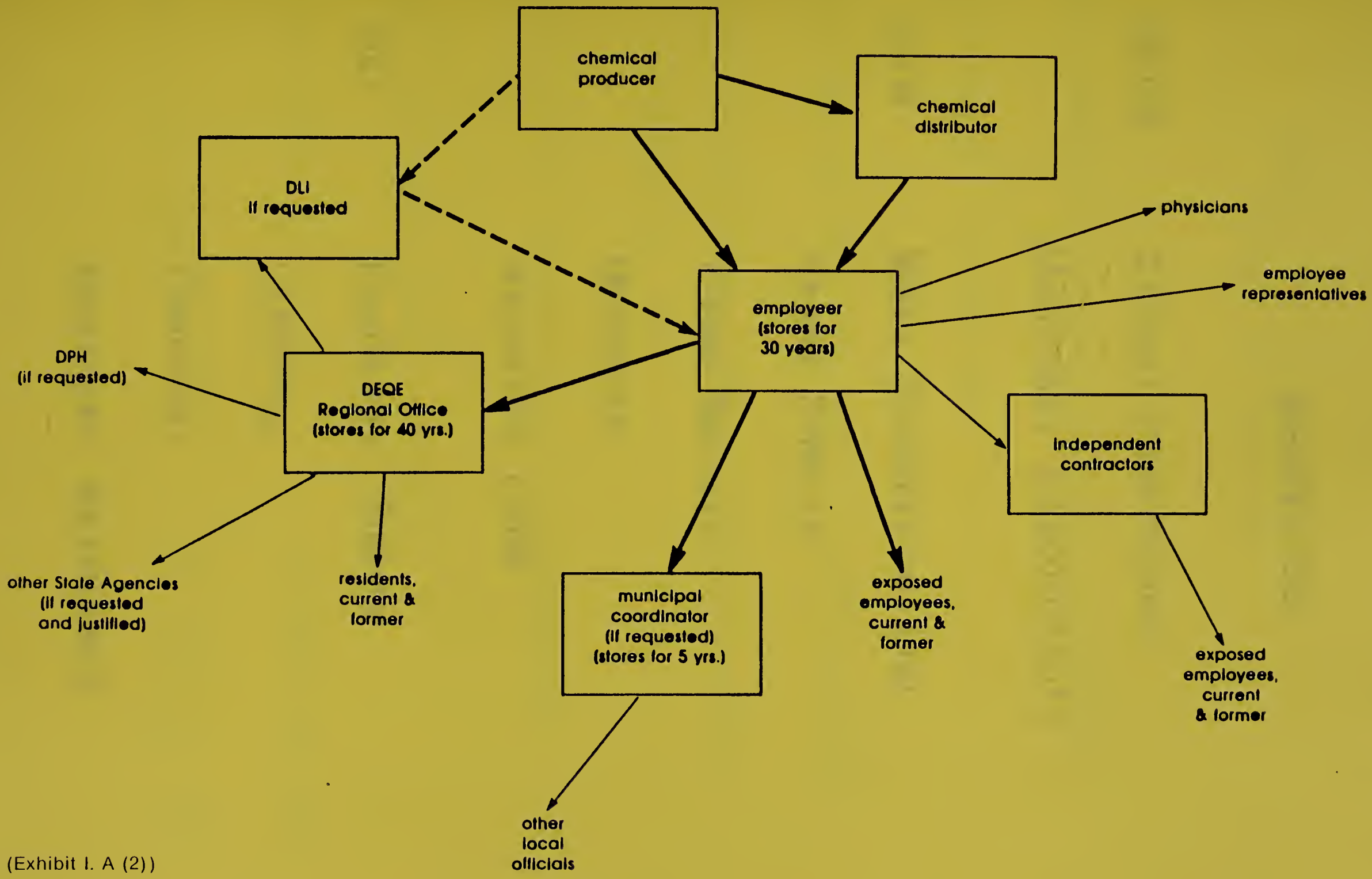
Information

Labeling

Training

(Exhibit I. A (1))

MSDS Distribution Path



(Exhibit I. A (2))

AGENCIES

DEQE	Collect Information
	Municipal Coordinators
DPH	Mass Substance List
	Health Effects
	Trade Secrets
	Mixtures
	Research Labs
DLI	Employee Rights
	Labeling
	Training
	Employer Assistance

(Exhibit I. B)

"RIGHT-TO-KNOW" BASICS
Steps for Start-up

Step 1: Inventory Chemicals in your workplace

Step 2: Get the current MSL

Step 3: Get the MSDS for each of your chemicals

Step 4: Compile an Employer's Right-to-Know Substance List

Step 5: Review the MSDS for Completeness

Step 6: Make the MSDS Available

Step 7 : Label Containers **BY SEPT. 26, 1984**

Step 8 : Train Workers **BY DEC. 25, 1984**

(Exhibit I. C)

EMPLOYEE RIGHTS

WORKPLACE NOTICE

TRAINING

ACCESS TO MSDS

REFUSAL TO WORK
WITH PRODUCT

CONTAINER LABEL

NON-DISCRIMINATION

HEARINGS AND APPEALS

(Exhibit I. D)

MASSACHUSETTS SUBSTANCE LIST

CONTENTS:

C.A.S. NUMBER

CHEMICAL NAME(S)

SOURCE LISTS OF ORIGIN

CHRONIC HEALTH CODE (KNOWN OR SUSPECTED):

C	CARCINOGENS
N	NEUROTOXINS
T	TERATOGENS
M	MUTAGENS

SAMPLE:

CAS #	NAME (SOURCE)	CODE
3383-96-8*	ABATE (4)	*N*
75-07-0	ACETALDEHYDE (2,4,5,6)	

(ASTERISK INDICATES SYNONYMS)

(Exhibit II. A.1 (a))

UNDERSTANDING HEALTH EFFECTS

HOW EXPOSED?

SKIN CONTACT
INGEST
INHALE

TYPES OF ADVERSE EFFECTS?

ACUTE— IMMEDIATE,
SHORT-TERM

CHRONIC— DELAYED
LONG-TERM

FACTORS?

DOSE
TIME OF EXPOSURE
PERSON
- AGE
- SEX
- GENERAL HEALTH
- ACTIVITY LEVEL
- STRESS LEVEL

(Exhibit II. B (1))

CONTENTS OF AN ACCEPTABLE MSDS

CHEMICAL IDENTIFIERS

HAZARDS

HEALTH RISKS (KNOWN OR SUSPECTED)

ACUTE—SYMPTOMS OCCUR IMMEDIATELY

CHRONIC—SYMPTOMS OCCUR LATER

C CARCINOGEN—(CANCER)
N NEUROTOXIN—(NERVOUS SYSTEM DISORDER)
M MUTAGEN (MUTATIONS)
T TERATOGEN (BIRTH DEFECTS)

MEASURES TO MINIMIZE HAZARDS AND HEALTH RISKS

EMERGENCY TREATMENT

(Exhibit II. A. 2 (a))

Material Safety Data Sheet

Required under USDL Safety and Health Regulations for Shipyard Employment (29 CFR 1915)

U.S. Department of Labor

Occupational Safety and Health Administration

OMB No 1218-0074
Expiration Date 05/31/86

Section I

Manufacturer's Name

Emergency Telephone Number

Address (Number, Street, City, State, and ZIP Code)

Chemical Name and Synonyms

Trade Name and Synonyms

Chemical Family

Formula

Section II - Hazardous Ingredients

Paints, Preservatives, and Solvents	%	TLV (Units)	**Alloys and Metallic Coatings**	%	TLV (Units)
Pigments			Base Metal		
Catalyst			Alloys		
Vehicle			Metallic Coatings		
Solvents			Filler Metal Plus Coating or Core Flux		
Additives			Others		
Others					

Hazardous Mixtures of Other Liquids, Solids or Gases

	%	TLV (Units)

Section III - Physical Data

Boiling Point (°F)		Specific Gravity (H_2O=1)	
Vapor Pressure (mm Hg.)		Percent Volatile by Volume (%)	
Vapor Density (AIR=1)		Evaporation Rate _____ =1)	

Solubility in Water

Appearance and Odor

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	Lel	Uel

Extinguishing Media

Special Fire Fighting Procedures

Unusual Fire and Explosion Hazards

Section V - Health Hazard Data

Threshold Limit Value

Effects of Overexposure

Emergency First Aid Procedures

Section VI - Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable		

Incompatability (Materials to Avoid)

Hazardous Decomposition Products

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur		

Section VII - Spill or Leak Procedures

Steps to be Taken in Case Material is Released or Spilled

Waste Disposal Method

Section VIII - Special Protection Information

Respiratory Protection (Specify Type)

Ventilation	Local Exhaust	Special
	Mechanical (General)	Other

Protective Gloves	Eye Protection

Other Protective Equipment

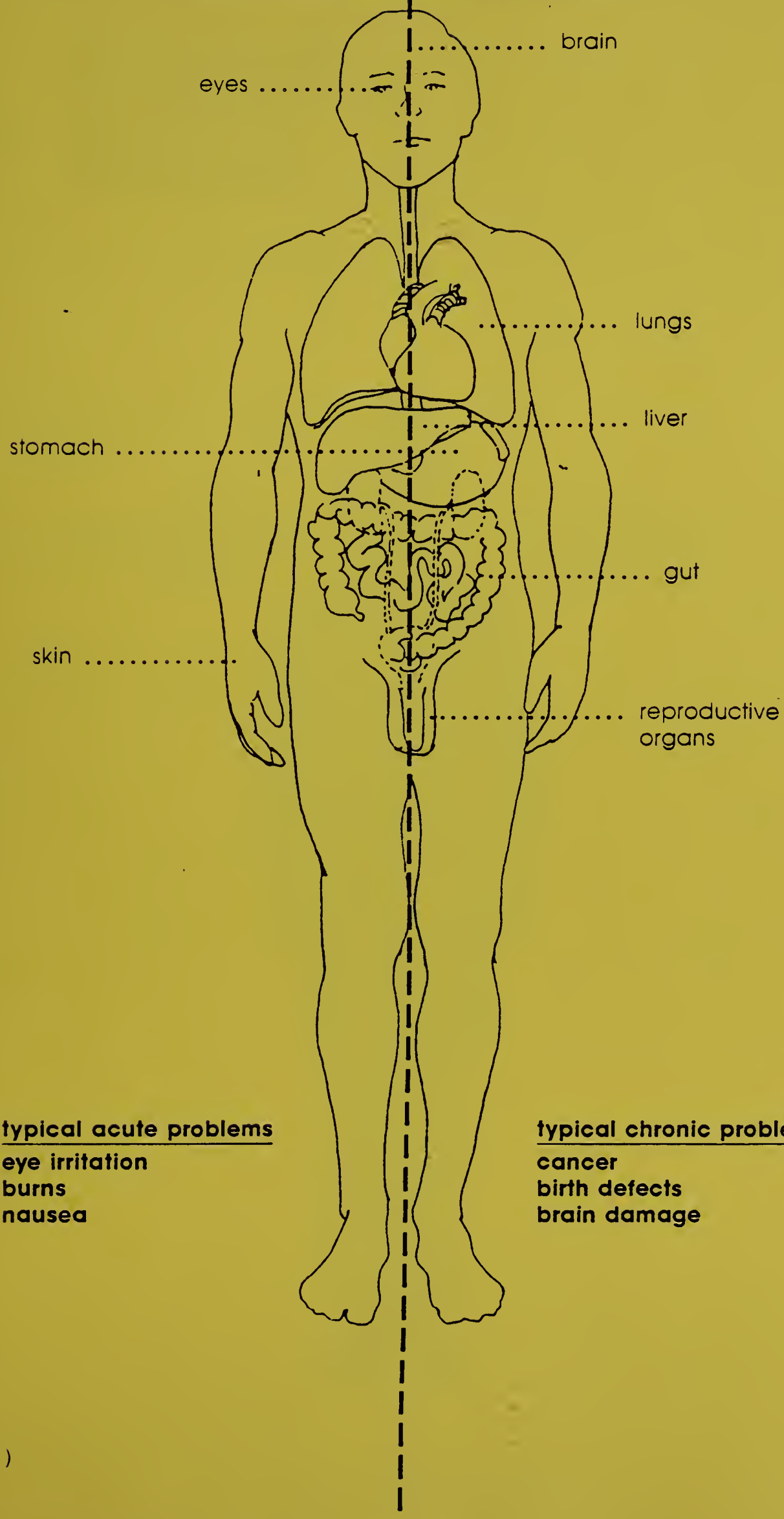
Section IX - Special Precautions

Precautions to be Taken in Handling and Storing

Other Precautions

ACUTE health hazards

CHRONIC health hazards



typical acute problems

eye irritation
burns
nausea

typical chronic problems

cancer
birth defects
brain damage

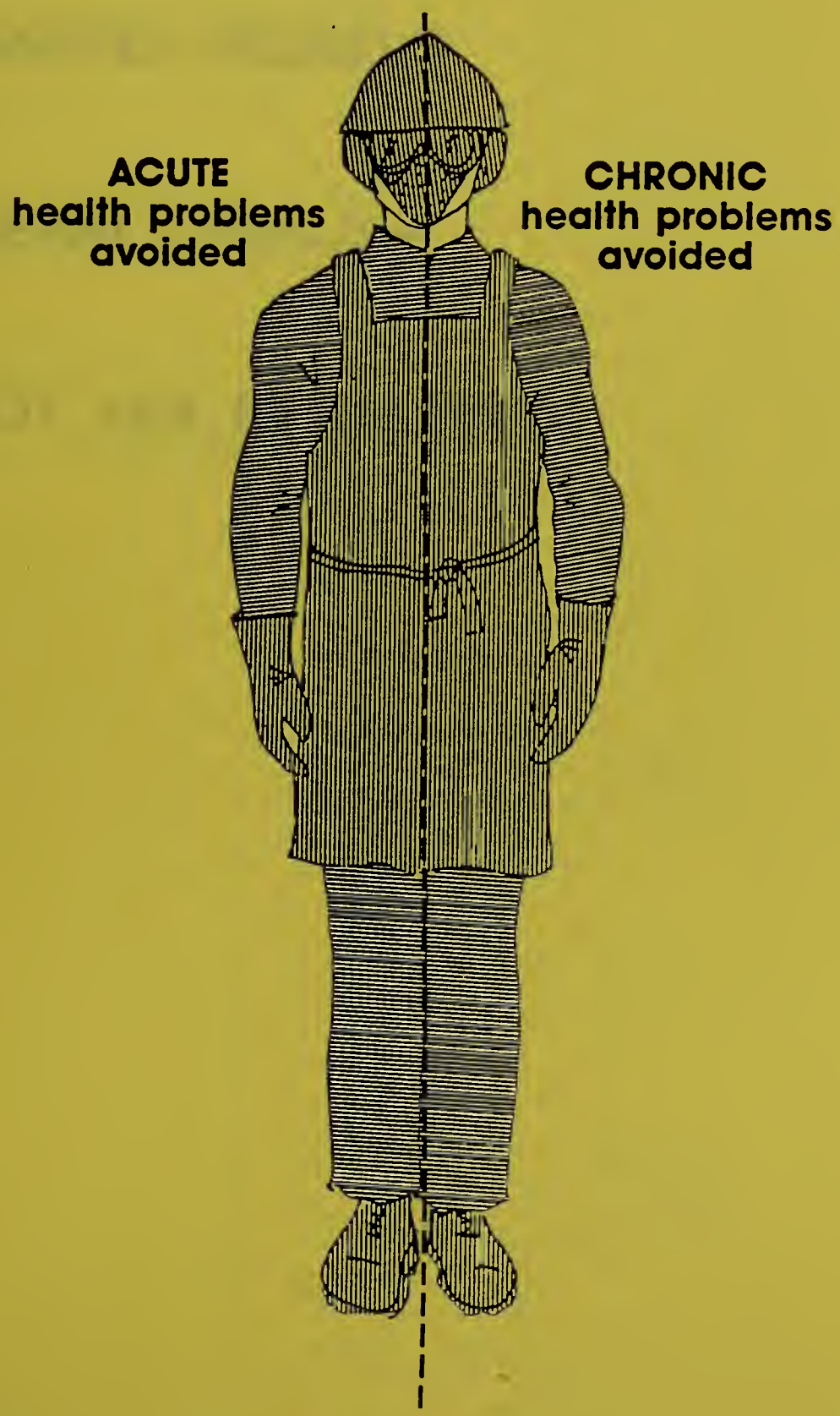
Exhibit II. B (2))

MSDS REQUEST FORM

(Exhibit III. A)

HOW TO PREVENT HEALTH EFFECTS?

PROCEDURES
HOUSEKEEPING
CLOTHING
EQUIPMENT



Equipment varies according to chemical.

(Exhibit II. B (3))

LABELING CONTAINERS

EXEMPTIONS:

SMALL CONTAINERS

TRANSFER VESSELS

FEDERAL LABELS—

DOT, AEA, FIFRA, FDCA

(Exhibit III. B.1) (option 1)

transfer vessel
volume 1 gallon or less
weight 5 lbs. or less
substance less than 1% of contents
substance is impurity and is less than 2% of contents
NO LABEL REQUIRED

(Exhibit III. B.1) (option 2)

LABEL CONTENTS

IDENTIFIER:

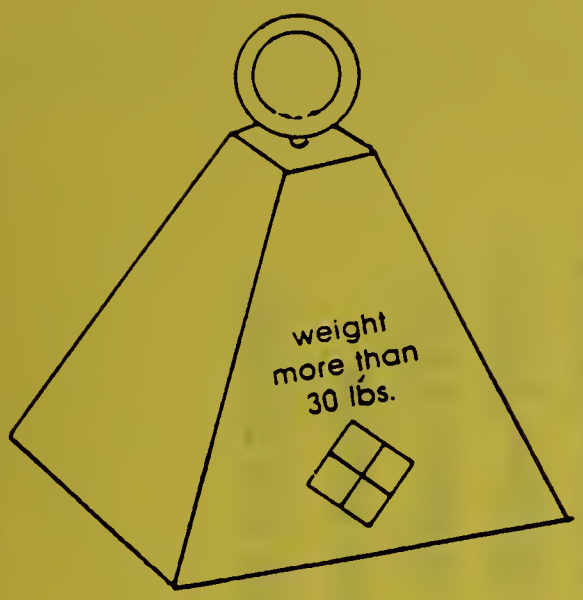
NAME(S) OF CHEMICAL(S)

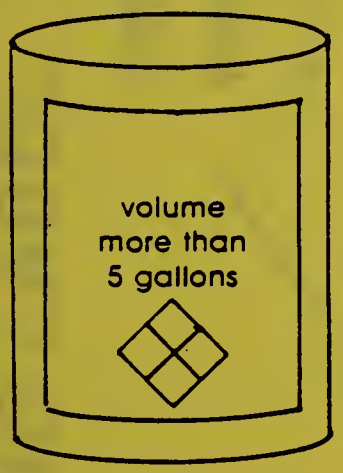
OR

MSDS CODE

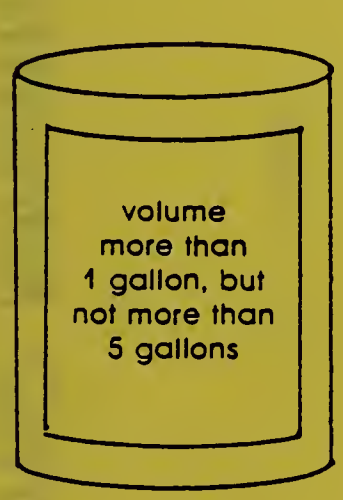
NFPA CODE — IF REQUIRED

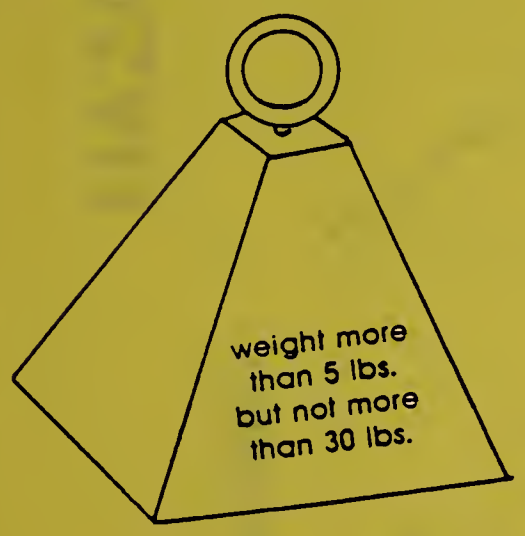
(Exhibit III. B.(2) (option 1)





NFPA CODE REQUIRED





NFPA CODE NOT REQUIRED

I.D. LABEL REQUIRED

non
trade-secret
chemical name

trade-secret,
non-chronic
health effects
MSDS I.D. code

trade-secret,
chronic
health effects
MSDS I.D. code & chronic health code

(Exhibit III. B.(2) (option 2))

NATIONAL FIRE PROTECTION ASSOC.
(NFPA)
HAZARD WARNING LABEL

HEALTH HAZARD

4— Deadly

3— Extreme danger

2— Hazardous

1— Slightly hazardous

0— Normal material

(BLUE)

(RED)

(WHITE)

FIRE HAZARD

Flash Points

4— Below 73° F

3— Below 100° F

2— Below 200° F

1— Above 200° F

0— Will not burn

(YELLOW)

REACTIVITY

4— May detonate

3— Shock and heat may detonate

2— Violent chemical change

1— Unstable if heated

0— Stable

SPECIFIC HAZARD

Oxidizer	**OXY**
Acid	**ACID**
Alkali	**ALK**
Corrosive	**COR**
Use NO WATER	
Radiation Hazard	

(Exhibit III. B. (3))

EXEMPT PRODUCTS

1. ALCOHOLIC BEVERAGES

2. FOOD STUFFS

3. RETAIL TRADE

4. ITEMS IN INTERSTATE TRANSPORT

5. CONSUMER GOODS

6. OFFICE SUPPLIES

7. GASOLINE, OIL FOR PASSENGER CARS

8. SPACE HEATING FUELS

(Exhibit II. A.1 (b))

APPENDIX III.3.C

Sample: Employee Training Documentation Sheet

I, _____ (name), an employee of _____ (name of agency) from _____ (date began working for agency), acknowledge that on this day I:

____ Attended a Right-to-Know training session at _____ (location) at _____ (time) on _____ (date);

____ Received instructional materials identified as _____.

The instructions included general information about the health effects of regulated substances in the workplace and a description of a sample MSDS as well as specific information about the chemicals I am or may be exposed to in my work.

_____ (employee signature) _____ (date)

_____ (employee job title)

_____ (area in which employee works)

Supervisor: _____

Workplace: _____

Location: _____

APPENDIX III.3.D

Sample Questions for Employee Evaluation of Right-to-Know Training

Instructions to Employers: What follows are a list of questions you might consider when developing your Employee Evaluation of Right-to-Know Training. Your objective is to ask questions that would reveal what information employees either misunderstood or did not grasp at all. This list may not be complete -- feel free to add other questions which more specifically address your particular training program and workplace.

I. Program Identification

1. On what date did you attend the Right-to-Know training program?

2. Who was the instructor?

II. Program Delivery

1. Was the information understandable or too technical?

2. What information, if any, was confusing?

3. Was the information complete? If not, for what topics would you like additional information:

   - MSDS
   - Labelling
   - Health Effects
   - Employee Rights
   - Handling products safely
   - Other topics

4. Were all of your questions answered to your satisfaction?

5. How effective were:

   - the oral presentation
   - the visual aids
   - the written materials distributed

6. Was the instructor's style easy to follow? If not, what were the problems?

7. Please rate the overall usefulness of the training session:

   ° extremely useful
   ° somewhat useful
   ° not useful at all

8. What suggestions would you make, to improve this training session and materials?

III. Right-to-Know Information

1. What is the MSL?

2. To whom must an employer make an MSDS available?

3. How can you obtain an MSDS from your employer?

4. What are the key elements to consider when evaluating the potential health effects of a chemical?

5. Explain the differences between acute and chronic health effects. Give examples of each.

6. For how long must an Employer keep records of the chemicals in his workplace? Why is it necessary to keep the information for that length of time?

7. Is it possible to identify the exact source of cancer? Why or why not?

8. What is a teratogen?

9. What is the TLV of a substance?

10. Is the TLV the same for all individuals? Why or why not?

11. What is the CAS# and why is it useful?

12. What is the LD_{50} of a substance? Why is this information useful?

13. What is the LEL of a substance? Why is it important?

14. How are trade secret substances treated differently under the Right-to-Know law?

15. Describe the NFPA Code system for labelling.

16. Under what circumstances can an employee refuse to work with a substance in the workplace?

17. What steps can you take to protect yourself from hazardous substances you handle?

SECTION IV: RIGHT-TO-KNOW TRAINING — ONGOING TASKS

Five situations might arise and trigger the need for additional employee training at some point during a year. A sixth situation automatically requires additional training.

Review your workplace monthly to determine (1) if any of these situations have occurred, and (2) what additional training is necessary.

This section briefly describes the steps to follow in each situation. If you have questions about any particular step, review the initial description of that step in Section III above.

Guide to Section IV

Situation 1:	Employer	-- Purchases a new chemical	IV-2
Situation 2:	State Agencies	-- Revise the Right-to-Know Regulations	IV-4
Situation 3:	Manuf/Dist	-- Revises information on the MSDS for a chemical in your workplace	IV-5
Situation 4:	Employer	-- Hires a new employee	IV-7
Situation 5:	Employer	-- Conducts Annual Routine Training	IV-8
Situation 6:	Employer	-- Makes some change in the chemical an individual employee handles, by (1) changing the workplace process, or (2) changing an employee's assignment	IV-10

Situation 1: Employer Purchases a New Chemical

Description: Whenever you purchase a new product, you must determine if it is subject to the Massachusetts Right-to-Know Law, and if so, follow the steps to comply with the law for the new substance.

Other Right-to-Know Actions: In general, you will have to go through the initial, basic implementation steps -- update the inventory, get the MSDS, and determine if it is subject to the Right-to-Know Law. If the substance is subject to Right-to-Know, then you will also have to review the MSDS for completeness, make the MSDS available, and label containers.

Steps for Employee Training

If the new substance is subject to the Right-to-Know law, then the following steps apply.

Step 1: Review the MSDS

Review the MSDS and assign it the proper categories on your various worksheets.

Step 2: Institutionalize on-site training program

Revise your Training Plan and Plan for Correcting Safety Deficiencies, as necessary.

Step 3: Prepare Employee Instructions

Plan some mechanism to disseminate this information -- either in writing, orally, or both. Your choice depends on the significance of the new information and your regular on-site training program.

Make a permanent record of any information to be distributed, because you may have to provide this information again.

Prepare a new "Employee Training Program Documentation Sheet."

If the new information is significant, you may want to distribute and collect an abbreviated evaluation form.

Step 4: Test and Revise the Instructions

Probably not necessary.

Step 5: Make Final Preparations

Deadlines: Although neither the Statute nor the regulations specify how long you have to instruct employees about information on a revised MSDS, 30 days seems to be reasonable.

Step 6: Provide Instructions

Implement whatever steps you outlined above for disseminating the information -- written instructions or training sessions.

Step 7: Record

Update your training program records so that you have a comprehensive, permanent record of the new information disseminated.

Be sure to collect an "Employee Training Documentation Sheet" (Appendix III.3.C) from each employee receiving this new information.

Step 8: Evaluate Your Instructions

This step may not be necessary, unless new information is quite significant.

Situation 2: State Regulatory Agencies Revise the Right-to-Know Regulations

Description: It is quite likely that the regulatory agencies will revise the regulations annually. These changes are most likely to occur in late spring or early summer each year. The most likely changes will probably be in the Department of Public Health's regulations covering the Massachusetts Substance List (MSL).

Other Right-to-Know Actions: Each Right-to-Know Coordinator will be responsible for identifying any changes in the Right-to-Know Regulations and notifying each workplace manager what steps must be taken.

Steps for Employee Training

Two types of changes might affect your training program:

1. Changes in the Massachusetts Substance List (MSL):

   - ° Adding new substances.
   - ° Changing the percentage concentrations of hazardous materials determining when a mixture is subject to the law.
   - ° Deletion of a substance (not likely, but possible).
   - ° Additional designations of chemicals with chronic health risks -- the Massachusetts Substance List now only designates carcinogens and neurotoxins; in the future, DPH will designate teratogens and nutagens.

2. Changes in Labelling, Employee Rights, or Training Requirements

   It is impossible at this time to give you specific instructions in each of these cases. However, in general we suggest the following:

   1. Identify the changes.

   2. Review all eight training program steps, and determine if the changes in any way affect the information you disseminated in the past or the individuals who need instruction. Walk through each step, and outline any additional actions.

   3. Pay especially close attention to any deadlines in the revised regulations. If there are none, try to implement the new training actions within thirty days of the effective date of the revised regulations.

Situation 3: Manufacturer/Distributor Revises Information on the MSDS for a Chemical in Your Workplace

Description: Manufacturers and distributors must send you a revised MSDS when they receive information that might change its contents. That information might trigger a variety of changes in your workplace.

Other Right-to-Know Actions: When this new information arrives, someone will have to review the new MSDS for completeness, make it available to the state and to employees, change labels if necessary, and instruct employees.

Steps for Employee Training

Step 1: Review the MSDS

Compare the new MSDS with the old one, and identify the changes. Note any changes in physical data, risks, precautions, or emergency responses that might affect employee health and safety.

Step 2: Institutionalize on-site training program

No action.

Step 3: Prepare Employee Instructions

Compare the new information with the information you disseminated at your initial training session: summarize the new information you must disseminate and decide how you will distribute it -- a written addendum to the program, an oral presentation at a regular staff meeting or both. The significance of the new information will probably strongly affect your choice.

Make a permanent record of any information to be distributed--written, taped, or video-taped--because you may have to provide this information again.

Prepare a new "Employee Training Program Documentation Sheet".

If the new information is significant, you may want to distribute and collect an abbreviated evaluation form.

Step 4: Test and Revise the Instructions

Probably not necessary.

Step 5: Make Final Preparations

Deadlines: Although neither the Statute nor the regulations specify how long you have to instruct employees about information on a revised MSDS, 30 days seems to be reasonable.

Step 6: Provide Instructions

Implement whatever steps you outlined above for disseminating the information -- written instructions or training sessions.

Step 7: Record

Update your training program records so that you have a comprehensive, permanent record of the new information disseminated.

Be sure to collect an "Employee Training Documentation Sheet" (Appendix III.3.C) from each employee receiving this new information.

Step 8: Evaluate your Instructions

This step may not be necessary, unless the new information is quite significant.

Situation 4: Employer Hires a New Employee

Description: If you have hired a new employee -- someone in either an 01, 02, or 03 position -- within 30 days you must provide him with the same instructions you provided your other employees. Treat temporary employees working for you for more than 30 days the same way.

Other Right-to-Know Actions: Does not affect any other Right-to-Know actions.

Steps for Employee Training

Step 1: Review the MSDS

No action.

Step 2: Institutionalize on-site Training

Revise forms as necessary. Be sure to note the date he was hired.

Step 3: Prepare Employee Instructions

Plan to disseminate the same information to the new employee which has been received by your employees up to that date. The new employee must receive the most recent information applicable to his workgroup.

Train the new employee within thirty days after he is hired.

Step 4: Test and Revise the Training Session

No action.

Step 5: Make Fianl Preparations

No actions for final preparations.

Notify the employee of his mini-training program as appropriate.

Step 6: Provide Instructions

Implement Steps 4 and 5.

Step 7: Record

Collect "Employee Training Documentation Sheet" (Appendix III.3.C) and update your training program records.

Step 8: Evaluate your Instructions

Probably not necessary.

Situation 5: Conduct Routine Training Annually for All Employees

Description: Employers must train employees annually: however there is no specific list of information that must be disseminated. We recommend that you use this annual training session as an opportunity to summarize all of the new instructions distributed during the year, and briefly review the basic information provided originally. It helps you make sure your employees understand the chemicals they handle.

Other Right-to-Know Actions: None affected.

Steps for Employee Training

Step 1: Review the MSDS

No action.

Step 2: Institutionalize on-site training

No action.

Step 3: Prepare Employee Instructions

Review all information you disseminated, either orally, in writing, or both, during the year.

Revise your Training Program talking points to include this information.

Prepare a new Agenda, Talking Points, Evaluation, and "Employee Training Program Documentation Sheet," for the Annual Training Program.

Make a permanent record of your Annual Training Program.

Step 4: Test and Revise the Sessions

Plan on testing it, just as you did your initial session.

Step 5: Make Final Preparations and Announce

Schedule the program within a year of your initial Right-to-Know training program. If you schedule it in the fall, you may be able to incorporate new training requirements due to changes in the Right-to-Know regulations.

Step 6: Conduct the Sessions

Again, follow the same instructions as for your initial training program.

Step 7: Record

Update all of your training program records after the annual training program.

Send copies immediately to your Right-to-Know Coordinator.

Step 8: Evaluate your Training Sessions

Collect and review the evaluation forms, and assess whether or not you need to conduct any additional training to correct misperceptions.

Situation 6: Employer Changes the Chemicals an Individual Employee Handles, by Changing (1) The Workplace Process or (2) An Employee's Assignment

Description: Whenever you change the chemicals to which an employee may be exposed, you have to provide him with instructions on how to handle these new substances. Since your records show you which chemicals each employee has been trained to handle, you can quickly assess whether or not this change will require additional instruction.

Other Right-to-Know Actions: None affected.

Steps for Employee Training

Step 1: Review the MSDS

No action.

Step 2: Institutionalize the on-site Training Program

Revise forms as necessary. Be sure that someone reviewing these records 20 years from now can tell when and how the changes occurred.

Step 3: Prepare Employee Instructions

Determine who needs to be trained for which substances.

Pull together your existing materials that apply to those substances.

If the workplace change involves the creation of a new process or procedure which requires some new safety steps (i.e., new types of exposure to a chemical employees already use), then you may need to outline an addendum to your training program -- again, plan to disseminate the information in writing, orally, or both.

Plan to disseminate the information session within 30 days of the change.

Make a permanent record of any information distributed -- written, taped, or video-taped records -- because you may have to provide this information again.

Prepare a new "Employee Training Documentation Sheet".

If the new information is significant, you may want to distribute and collect an abbreviated evaluation form.

Step 4: Test and Revise Instructions

Probably not necessary.

Step 5: Make final preparations

Notify the affected employees, if you are going to conduct a training session.

Step 6: Provide Instruction

Again, we suggest you provide the instruction within 30 days of making the change in your workplace.

Step 7: Record

Collect the "Employee Training Program Documentation Sheets," and update your training records.

Step 8: Evaluate the Training Session

This step may not be necessary, unless you have made significant changes. Refer back to Step 4 above.

IT BE MASSAGHERE

SECTION V: ADDITIONAL RESOURCES FOR USE IN TRAINING

Purpose: Ths section provides a variety of written materials that you might use when implementing the Right-to-Know training requirements--give them to employees, to trainers, to supervisors, to your top-level managers. Or make transparencies from them, snd use them in a presentation. They are here for your use. Review them, and decide for yourself what is useful, and in what way. We have grouped the information into seven topics.

Guide to Section V

Topic 1:	Introduction to Right-to-Know	V-2
Topic 2:	Understanding Health Effects of Chemical Exposure	V-10
Topic 3:	The Material Safety Data Sheet	V-17
Topic 4:	Labelling	V-26
Topic 5:	Training	V-28
Topic 6:	Trade Secrets	V-30
Topic 7:	Mixtures	V-31
Topic 8:	Employee Rights	V-33
Topic 9:	Additional Resources	V-34

Topic 1: Introducing the Right-to-Know Law
What is the "Right-to-Know" Law?

The "Right-to-Know" Law[1] is an information law

It is designed to make employees and community members aware of and prevent adverse health effects that might result from exposure to workplace chemicals. It requires that employers collect and distribute Material Safety Data Sheets (MSDSs), label containers of hazardous substances, and train workers to handle them properly.

Under the law information about workplace chemicals and their health effects must be prepared by chemical producers and circulated to:

distributors,
other employers,
employees,
designated state agenices

and potentially to

physicians,
residents, and
local officials.

Almost all New England states have "right-to-know" laws. The Massachusetts law is the newest addition, and went into effect September 26, 1984. It is also one of the most far-reaching and is generally more stringent than federal requirements or those of other states.

Overview of the Massachusetts Right-to-Know Law

Most simply put, the right-to-know law mandates five basic actions:

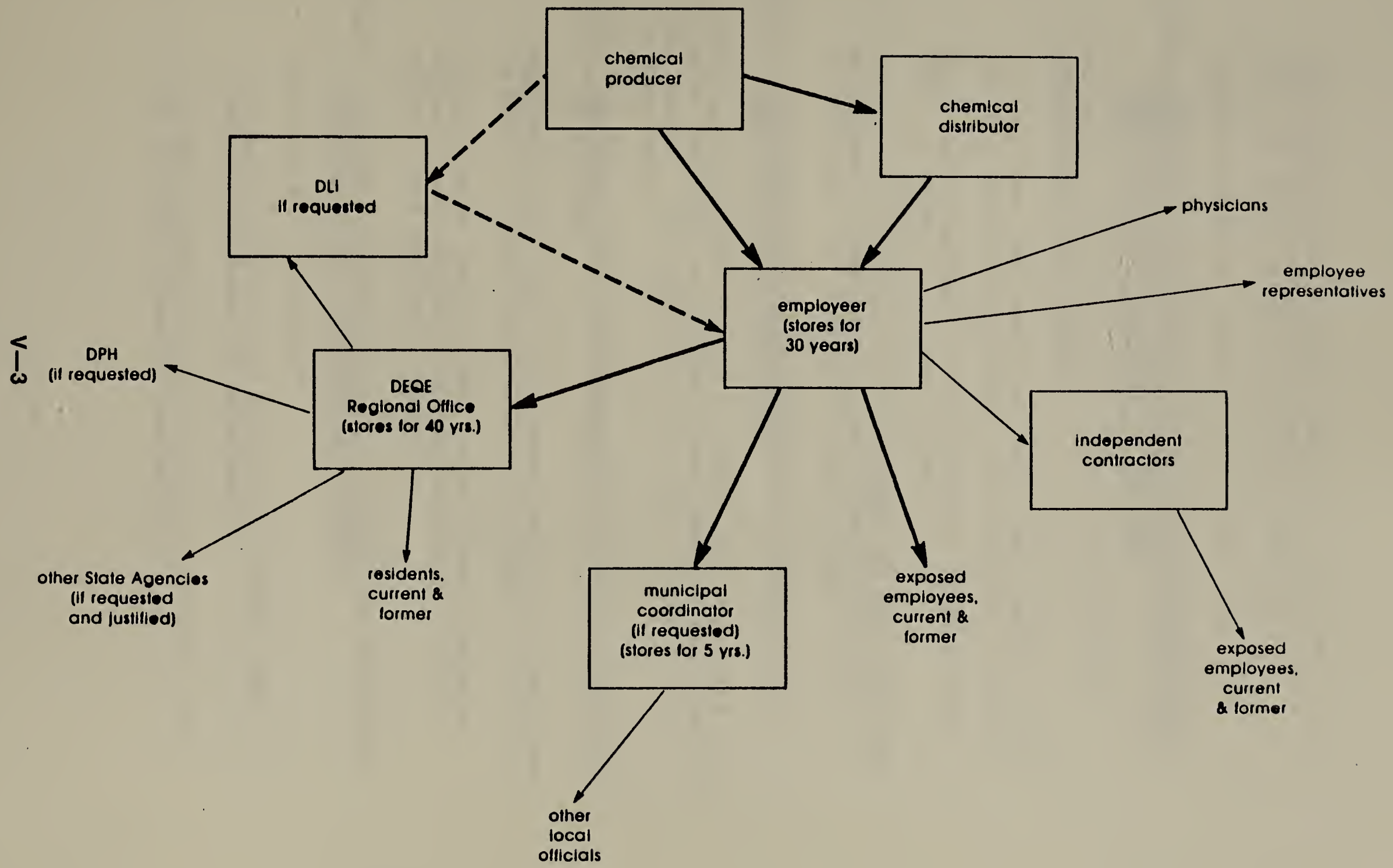
Action 1: The State must develop a Massachusetts Substance List (MSL)

-- The MSL includes the chemical name and Chemical Abstract Service (CAS) Number of each toxic or hazardous substance subject to he right-to-know requirements.

---

[1] Chapter 111F of the Massachusetts General Laws, adopted November 4, 1983

MSDS Distribution Path



-- The right-to-know statute specifies that the state's list include chemicals on ten already know lists plus any other chemicals the state add to it.

-- The MSL currently contains about 1600 chemicals.

Action 2: Employers must prepare and distribute to certain parties a Material Safety Data Sheet (MSDS) for each of their chemicals on the MSL.

-- The MSDS is the foundation of the right-to-know information requirements.

-- It describes the chemicals used, their health risks, how they should be handled, and emergency responses.

-- The chemical producer or distributor prepares the MSDS and sends it to each buyer.

-- Employers must distribute the MSDSs to the state and on request to employees, physicians, independent contractors, and municipal coordinators.

Action 3: Employers possessing hazardous chemicals must label chemical containers.

Labels are intended to make it easier for employees to know the risks and proper precautions of the chemicals they handle. Each employer must label containers in his workplace.

Action 4: Employers must train employees to handle chemicals on the MSL.

-- Employers must train all current and future employees to properly handle chemicals on the MSL.

-- Training must identify and locate these chemicals, explain their proper handling, potential health effects, and emergency responses.

Action 5: Municipal Coordinators must respond to residents' complaints and information requests.

-- The Municipal Coordinator

  -- is named by the chief municipal officer (mayor, manager, or Board of Selectmen)

  -- in most localities will be either the Fire Chief or the Public Health Commissioner.

-- His job is to

  -- evaluate local petitions about specified workplaces
  -- recommend actions
  -- handle residents' inquiries about local firms.

-- Employers must provide him an MSDS, on request; he must store it for five years.

Affected Workplace

Almost all firms that handle hazardous substances (i.e., chemicals on the Massachusetts Substance List (MSL)) are subject to this law.

For example, the following businesses are subject to the law because they:

manufacture hazardous substances:
- paint distributors
- pesticide producers
- solvent producers
- chemical producers
- adhesives manufacturers

process hazardous substances:
- solvent recyclers
- plastic producers

use hazardous substances:
- electroplaters
- hospitals
- dry cleaners
- construction firms
- machine shops
- repair/maintenance shops
- tanners
- printers
- photography developers

store hazardous substances:
- waste oil transfer stations
- chemical warehouses
- oil distributors

Exempted Workplaces:

However, some workplaces are not covered by the law:

1. Residents: Right-to-Know does not cover activities of domestic workers or casual laborers employed at a residence.

2. Research Labs: Research Labs are exempt from right-to-know (but they must apply to the Dept. of Public Health for an exemption).

3. Retail Outlets: If a retail store contains only finished products it may not be subject to the right-to-know requirements. Asbestos insulation, transformers with PCBs, insulation with formaldehyde, and treated wood are examples of finished products. However, if employees in a retail outlet must deal with unfinished products or chemicals on the MSL the outlet must comply with the right-to-know law requirements.

Hazardous Substances Affected

The Massachusetts Substance List (MSL) includes about 1600 chemicals which can be dangerous if handled improperly. Table C lists industrial products that may contain substances on the list.

Exempted Substances

The law exempts certain substances explicitly from its requirements.

The following items are exempt from right-to-know requirements, as long as employee exposure is similar to consumer exposure.

1. Alcoholic beverages
2. Food stuffs
3. Items sold or used in retail trade establishments (unless used in processing and repair areas)
4. Items being transported in interstate commerce
5. Consumer goods--goods packaged and sold to the general public in the same way they are packaged for you. (Note: if the substance is chemically reactive and carcinogenic, it is not exempt)
6. Office Supplies--goods found in an office environment, including toner for copying machines.
7. Gasoline, oils, and other additives used in passenger vehicles or light-duty trucks.
8. Fuel oils numbers 1, 2, 3, 4, 5, and 6, natural gas, kerosene, petroleum, and propane, when used for space heating or power generation.

Participants in the Right-to-Know Process

There are several groups that are given responsibilities and/or rights under the Massachusetts Right-to-Know Law. Generally, they can be divided into four categories: (1) state participants; (2) municipal participants, (3) employees, and (4) employers.

State Participants

Besides its primary activity of producing the Massachusetts Substance list, the state must also develop regulations implementing the law, enforce these rules, make exemptions and exceptions to requirements, and assist other participants. These tasks are divided among three state agencies:

DPH: The Department of Public Health is specifically responsible for developing the MSL, distributing information regarding health effects of toxic or hazardous substances, determining whether a substance is a trade secret and therefore not subject to "right-to-know" requirements, and deciding whether to grant an exemption to research labs.

DEQE: Department of Environmental Quality Engineering has two primary responsibilities under the law: (1) to store and distribute copies of MSDS from employers and (2) to review and respond to municipal coordinators' responses to community resident petitions for release of information by a specific employer.

DLI: Department of Labor and Industries helps employers obtain MSDSs from chemical manufacturers and distributors and represents the concerns of employees. Specifically, DLI administers the employee grievance process and enforces an employer's compliance with employee access to information and compliance with labelling requirements.

Municipal Participants

At the local level, there are primarily two participants in the right-to-know process: (1) the municipal coordinator, who will be the fire chief or public health officer in most communities, (or an individual appointed by the board of selectmen): and (2) community residents. A community resident may ask the municipal coordinator to investigate a workplace if the resident has reason to believe a toxic or hazardous substance used in the workplace presents a threat to public health and safety. The municipal coordinator reviews the petition, determines if an investigation is warranted, and if so, recommends appropriate action.

Employees

An employee is "any person employed on or after the effective date of the law (September 26, 1984) who is, has been, or may be exposed under normal operating conditions or foreseeable emergencies to any toxic or hazardous substance in the workplace."

An employee has the right to know of the presence of toxic or hazardous substances in the workplace and to know the health risks associated with exposure to those substances.

An employee (or his collective bargaining agent) may have an MSDS for any toxic or hazardous substances to which he is, has been or may be exposed.

An employee's physician also has rights under the law. If an employee authorizes his physician to act on his behalf, his physician may obtain a copy of MSDS for chemicals to which his patient was exposed.

Employers

An employer is "any person, firm, corporation, partnership, association or other entity engaged in a business or in providing services, including the commonwealth and any of its political subdivisions, that manufactures, processes, uses or stores toxic or hazardous substances, (but not including the employment of domestic workers or casual laborers employed at the place of residence of the employer.)

The law affects different types of employers differently:

-- Chemical Producers: Make and sell chemicals to distributors and other employers who use the chemical in some industrial process. Typically the producer prepares the MSDS and starts it on its path to other employers.

-- Distributors: These firms simply repackage and distribute chemicals, but they are still subject to this law, just as any other employer handling hazardous materials. Distributors are often the middle men, making sure the MSDS prepared by the producer is transmitted to the employer who actually uses the chemical.

-- Other employers: Most firms subject to right-to-know fall into this category. It includes firms that buy chemicals and use them in some industrial process or other business.

-- Independent Contractors: These employers are a special case. When they control the workplace or hazardous substance, they are treated as "employers", and must collect and distribute MSDSs, label containers, and train workers. When they don't control the workplace or hazardous substance, they are treated more like "agents" for their employees. However, they must make sure their employees' rights are protected, wherever they work.

An employer has numerous responsibilities under the law. He must:

-- obtain an MSDS for each chemical in his workplace that is also on the Massachusetts Substance List (MSL),
-- notify his employees of their rights under the law,
-- make MSDS's available to employees who request them (the request must be in writing),
-- store copies of all MSDS's for 30 years after discontinuing use of the substance,
-- train employees regarding the health effects of chemicals they are exposed to in the workplace, and,
-- label vessels containing substances on the MSL.

Topic 2: Understanding Health Effects of Chemical Exposure

Right-to-Know Requirements grew directly out of community and employee concerns about hazardous substances and their health effects. The underlying purpose of all right-to-know requirements is to make sure all employees have an opportunity to know what chemicals they are handling, the potential health effects of those chemicals and ways to avoid them, and the appropriate response.

Health effects play a role in three areas of the right-to-know requirements:

1) Labeling: Certain chronic health effects of chemicals must be indicated on label for trade secret substances;

2) MSDS completion: Every MSDS has a section on health effects;

3) Training: An employer must explain the chronic health effects of chemicals used in his workplace.

The following pages list general questions and answers about the health effects of chemical exposure.

How do adverse health effects from chemicals occur?

Before any health hazard from a chemical can occur, three factors must be present:

1) a chemical in sufficient quantity and appropriate form
2) a person who can come in contact with the chemical
3) an actual exposure to the chemical by the person

What types of chemicals may cause adverse health effects?

Four categories of chemicals may cause injury or illness if handled improperly. These include chemicals that are:

1) Ignitable, (those that can burn easily)
2) Corrosive, (those that can cause chemical burns to with other chemicals to release hazardous vapors or cause explosions)
3) Reactive, (those that are unstable and may explode spontaneously with the addition of heat)
4) Toxic, (those that can cause harmful health effects to a living organism)

Some chemicals may fall into more than one group.

What factors determine whether a given individual will develop an adverse health effect from chemical exposure?

Each person's system copes with chemical exposure in a different manner. An individual's response to a given chemical will depend on his age, activity and stress level and overall health status. Generally, the very young and the very old and those under stress are more susceptible to chemical exposure than others in the population. Pregnant women may also be at greater risk than others. Poor nutrition, lack of vitamins, a sedentary occupation, and poor eating habits can also affect an individual's response to chemical exposure.

What are the ways in which a person may be "exposed" to a chemical?

1) Skin contact
2) Ingestion, or
3) Inhalation

For any particular chemical, exposure may occur by more than one route.

The Right-to-Know law specifically defines "exposure" as "any situation arising from or related to the work operation of an employer where an employee or a community resident may ingest, inhale, absorb through the skin or eyes or otherwise come into contact with a toxic or hazardous substance." Exposure is a key concept in the law because the rights created under the law only apply to exposed employees. Therefore, clerical or administrative workers who do not come in contact with toxic chemicals during their normal working hours may not be covered under the law.

What types of health effects can occur from exposure to chemicals?

Health effects resulting from contact with chemicals fall into two general categories:

ACUTE:

Acute effects occur immediately following or very shortly after exposure. Examples include: rashes, burning of skin or eyes, nausea, vomiting, shortness of breath or tightness in the chest. Acute effects may result from exposure to any of the four types of chemicals listed above.

CHRONIC:

Chronic effects are of two types:
-- Those that develop gradually over time after the initial exposure. For example, liver damage may result from prolonged exposure or repeated exposure to carbon tetrachloride.

-- Those for which there is a significant time lag between the initial exposure and any appearance or onset of effects. This often occurs with cancer-causing agents or carcinogens (the time lag may be 10 to 30 years).

Chronic effects are more likely to result from exposure to toxic chemicals than to ignitable, reactive or corrosive chemicals. Because of the long time delay in developing illnesses such as cancer it is often difficult to pinpoint the exact cause of the disease. Other environmental factors or personal habits such as smoking or coffee drinking may contribute to the development of chronic illnesses.

What types of chronic health effects must employers discuss with employees or put on chemical labels?

During the training sessions the employer must specify which chemicals are carcinogens, mutagens, teratogens, or neurotoxins, and explain what these words mean. In addition, if the substance is a trade secret, its label must indicate if it presents one of these four chronic health risks. A code has been assigned to each of these effects. The four health effects followed by their respective codes are explained below.

Carcinogen (C): A carcinogen is any substance capable of inducing the growth of a tumor. Unlike many toxic substances, the action of carcinogens is usually irreversible, and there is a long lag period between the initial exposure and the onset of the disease.

Mutagen (M): A mutagen is a chemical that can cause a change in the genetic material of a cell. Mutations may result in spontaneous miscarriages, or children born with genetic defects. Exposure to certain chemical solvents and pesticides can result in mutations.

Teratogen (T): A teratogen is a chemical that interferes in some way with the development of the fetus after conception. Teratogens, like mutagens, may lead to spontaneous abortions and birth defects, but they differ from mutagens in that mutagens affect cells before, not after, conception.

Neurotoxin (N): A neurotoxin is a chemical that acts on and is harmful to the nervous system including the brain, nerves and spinal cord.

The Massachusetts Substance List (MSL) designates all carcinogens and neurotoxins by their appropriate codes. Eventually, it will also designate mutagens and teratogens.

What determines whether an adverse health effect occurs and whether it will be acute or chronic?

Whether an adverse health effect occurs after exposure to a chemical depends primarily on the concentration of the chemical or the "dose" one is exposed to. For some chemicals there is a threshold dose -- that dose below which no harmful effects occur. For others, some cancer-causing agents and radioactive agents, there is considerable doubt as to whether a threshold dose exists.

Whether a health effect is acute or chronic also depends on the dose. The amount of a chemical needed to produce chronic effects is likely to be much less than the minimum amount required to produce an immediate, acute effect.

How does an employer/employee know what a "safe" dose is?

The health effects section of the MSDS will often indicate the "threshold limit value" or TLV of a chemical. The TLV is a term used bv the American Conference of Governmental Industrial Hygienists (ACGIH -- an organization of brofessional personnel in governmental agencies or educational institutions engaged in occupational safety and health programs), to express the airborne concentration of a material to which nearly all persons can be exposed day after day without adverse effects. ACGIH expresses TLVs in three ways:

1) TLV-TWA: The allowable time weighted average concentration for a normal 8-hour workday or 40-hour work week;
2) TLV-STEL: The short-term exposure limit, or maximum concentration for a continuous 15-minute exposure period;
3) TLV-C: The ceiling exposure limit -- the concentration that should not be exceeded even instantaneously.

Because of physiological differences among various workers, there may be a small percentage of individuals who will be affected at lower concentrations, as well as a small percentage of workers who will show more serious effects because of aggravating a pre-existing condition.

What else does an MSDS indicate about health effects?

The MSDS is the primary source of health and safety information concerning most chemicals. This information should include:

1) chemical names, common names and the chemical formula;
2) hazardous ingredients (if it is a mixture);
3) information characterizing the chemical's appearance and physical properties;
4) fire and explosion hazard information;

5) health hazard information including, threshold doses and acute and chronic symptoms;
6) precautions for handling the chemical, including procedures for cleaning spills or leaks.

The hazardous ingredients section may provide information on the acute toxicity of the chemical or mixture based on animal tests. The toxicity data may be expressed in two ways:

1) The LD_{50} (Lethal $Dose_{50}$)	The single dose of the substance which is expected to kill 50% of a group of test animals.
2) The LC_{50} (Lethal $Concentration_{50}$)	The concentration of the material in air which is expected to kill 50% of the test animals when administered as a single exposure.

The LD_{50} and LC_{50} values are only intended to estimate the relative degree of toxicity associated with a particular material. They are based on animal tests, and should not be used to estimate a specific safe level of intake or exposure for humans.

What types of personal protective equipment should an employer have available?

Personal protective equipment includes all clothing and accessories designed to create a barrier against workplace hazards. Equipment does not eliminate the hazard but protects employees against exposure to harmful substances. To fully protect a worker, equipment must be properly fitted and maintained in a clean and serviceable condition.

The MSDS usually lists the personal protective equipment and related safety information (such as ventillation requirements). Personal protective equipment may include the following items, plus more:

1) gloves
2) aprons
3) respirators
4) masks
5) safety glasses
6) self-contained breathing apparatus
7) helmets
8) shoes

What should I do in emergency situations involving chemical exposure?

Container labels and the MSDS usually describe first-aid action for a chemical. There are several basic "rules" of first-aid:

a. Do not panic.

b. Remove victim from exposure.

c. Contact a doctor or poison control center immediately.

d. In the event of inhalation exposure, remove the victim to fresh air immediately; loosen tight clothing.

e. In the event of ingestion exposure, induce vomiting except in the case of corrosives (e.g., acids or alkalis) or petroleum products (e.g., kerosene, paint thinner).

f. If eyes or skin are exposed, immediately and extensively flush with cold running tap water.

g. Conserve body warmth by applying blankets, if necessary.

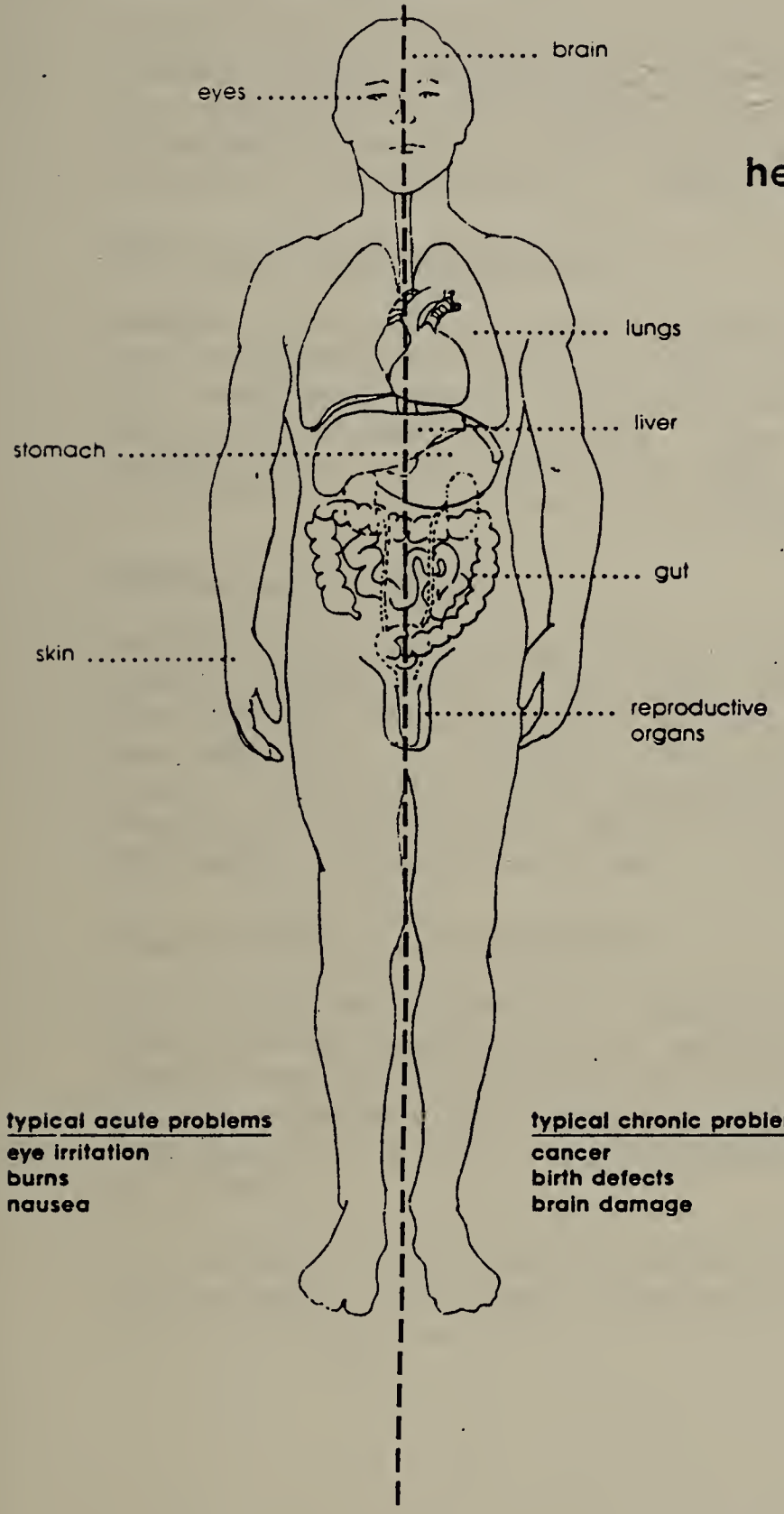
h. Do not attempt to treat convulsing or unconscious victim.

i. Do not search for an antidote -- treat the victim, not the chemical.

A doctor should always be consulted after an accident, even if the person appears to be unharmed.

ACUTE health hazards

CHRONIC health hazards



typical acute problems

eye irritation
burns
nausea

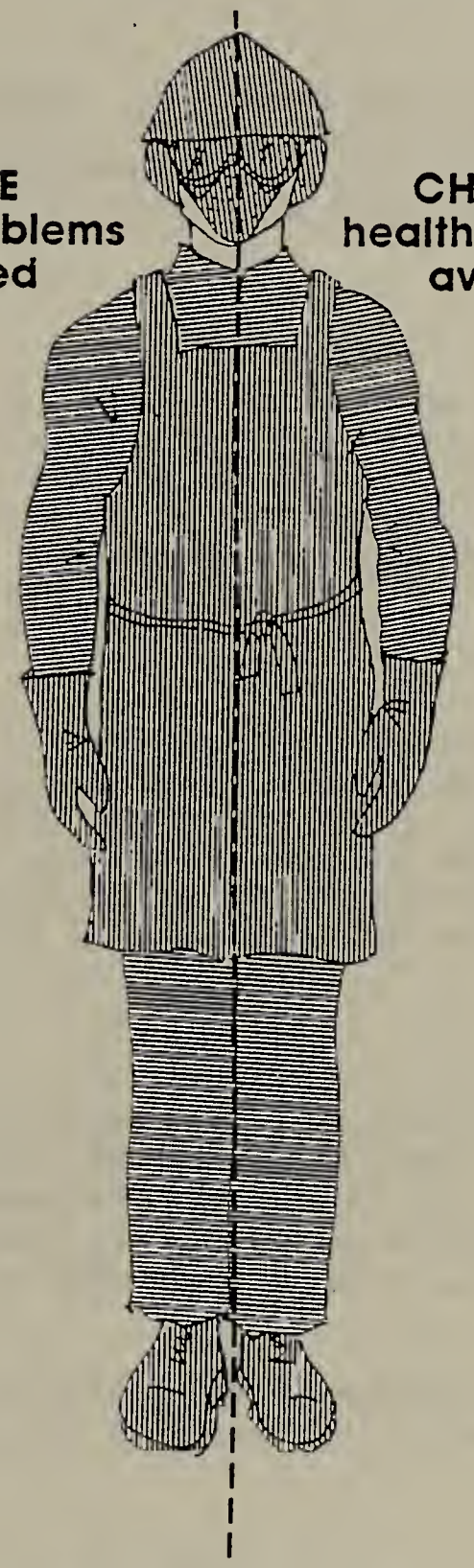
typical chronic problems

cancer
birth defects
brain damage

With Proper Protective Equipment & Clothing

ACUTE health problems avoided

CHRONIC health problems avoided



Equipment varies according to chemical.

Topic 3: The Material Safety Data Sheet

This section explains how to read an MSDS and provides a sample.

What is an MSDS?

MSDS stands for Material Safety Data Sheet. Although not an ideal format, manufacturers have adopted it as the basic document for describing the toxic ingredients and hazards of a product. Manufacturers and importers prepare an MSDS for each hazardous product they produce or import.

Why are MSDSs Important?

MSDSs serve as the basic, often the only, source of information on the chemical identity and dangers of a material for most workers and employers. Unfortunately, they are designed to be read by chemists and engineers. The purpose of this chapter is to explain the contents of an MSDS so that employees can use this information to correct or eliminate potential hazards.

What's in an MSDS?

An MSDS can be in any form, as long as the information is complete and accurate. But most MSDSs follow a general form developed by the Occupational Safety and Health Administration, called the OSHA-20. An example follows. There are nine separate sections. The MSDS is an important source of clues to potential hazards, but it alone may not provide all the information an employee may need to know.

If the MSDS is Incomplete?

Currently many MSDS are incomplete. Although many manufacturers are quickly improving the quality of their MSDSs, employees should not be surprised to discover incomplete ones. If the MSDS is not complete an employer should contact his distributor and request that either the information or a more recent MSDS be provided.

An employer has complied with the Right-to-Know requirements if he has made a diligent effort to obtain the necessary information from his supplier.

Selection A: How to Read an MSDS[1]

SECTION I: Product Identity

This section provides the chemical identity of the product as a whole. Chemicals can be identified in several ways: by the formal chemical name, by the CAS number, by the trade name (what it's called on the shop floor), by the chemical family or general category of chemicals, and by the chemical formula. Of these five, the formal chemical name and the CAS number are the most useful. Each chemical has a unique CAS number. Often, there is more than one name (or synonym) for the same chemical. The formal chemical name may be provided only if the product is made up of a single chemical. Mixtures that are made up of several different chemicals may not have a single, formal chemical name.

This section also provides the manufacturer's name, address, and telephone number.

Sometimes the manufacturer will not provide the formal chemical name of the product, claiming that it is a trade secret. This means that release of this information will put the company at a disadvantage against its competitors. Sometimes there is little reason to make this claim because the product is really a simple mixture of commonly used ingredients. If the formal chemical name is not provided, knowledge of the chemical family will help narrow down the possibilities.

SECTION II - Hazardous Ingredients:

This section applies to mixtures. On some sheets, ingredients are divided into three parts: paints, preservatives and solvents; alloys and metallic coatings; and hazardous mixtures of other liquids, solids, or gases. For most mixtures, only one of these divisions may apply. Each ingredient should be identified by the formal chemical name. In addition, the approximate percentage of each ingredient by weight or volume is provided. The percentages may not add up to 100 since often only the hazardous ingredients are listed.

The TLV for each ingredient also is specified. The TLV stands for the Threshold Limit Value, and it is an air level specified by the American Conference of Governmental Industrial Hygienists (known as ACGIH). The TLV is the recommended maximum average air concentration over an eight hour day.

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[1] This Guide has come primarily from MassCOSH, Massachusetts Coalition for Occupational Safety and Health, a private non-profit agency working to protect workers' rights.

There are about 12,000 chemicals in use, but only about 400 have been assigned TLVs. Therefore, many chemicals have no TLV. Sometimes ingredients that do not have a TLV will not be listed separately. Howver, just because a chemical does not have a TLV does not mean that the chemical is safe.

SECTION III - Physical Data:

This section provides the key physical properties of the product.

Boiling point: The temperature at which the liquid boils (or becomes a gas) in degrees Fahrenheit. Ranges are presented for mixtures.

Vapor pressure: The higher the vapor pressure, the more easily a liquid will evaporate. Liquid materials that evaporate easily are termed volatile, and this means that air concentrations can build up quickly when working with the material in liquid form. Materials with high vapor pressures may be particularly hazardous if you are working in areas with poor air circulation. Vapor pressures are measured in units of millimeters of mercury (mm Hg). For example, two common solvents whose use can lead to hazardous air levels, xylene and toluene, have vapor pressures of 7 mm Hg and 22 mm Hg, respectively. However, materials with lower vapor pressures still may pose an inhalation hazard.

Vapor density: The relative density or weight of a vapor or gas compared with an equal volume of air. A vapor density less than one means that the substance will tend to rise in air; a vapor density greater than one means that it will fall in air. Substances with higher vapor densities will concentrate in the bottom of tanks, or on the floor when spilled. This information is important when designing a ventilation system.

Solubility in water: The percentage of weight of the substance can be dissolved in water. "Negligible" means less than 0.1%; "slight" means 0.1% to 1%; "moderate" means 1% t 10%; "appreciable" means more than 10%; and "complete" means it can be dissolved in all proportions. This information is important for fire-fighting.

Specific gravity: The ratio of the weight of a volume of material to the weight of an equal volume of water at 39.2 F. A specific gravity greater than one means that the substance will sink in water; a specific gravity less than one means that it will float.

Percentage volatile by volume: This refers to the percentage of a liquid or solid that evaporates at room temperature. The higher the percentage, the faster the material will evaporate.

Evaporation rate: The rate at which the material evaporates is compared either to: ether (a chemical which evaporates very quickly) or to butyl acetate (a chemical which evaporates very slowly). The chemical which is being used as comparison should be specified. If the value is greated than one, it evaporates more easily than the specified comparison chemical; if the value is less than one, this means that the substance evaporates more slowly than the comparison chemical.

Appearance and odor: This information may help you identify what you are working with. Keep in mind that odor or smell may be a poor measure of the concentration of the substance in the air. Some substances can reach hazardous levels and still have no noticeable odor.

SECTION IV - Fire and Explosion Hazard Data:

Flash point: The temperature (in degrees F.) at which a liquid will give off enough flammable vapor to ignite. The flash point may be expressed as a range of temperatures. A flash point near or below room temperature (73 Degrees F.) indicates material that is especially dangerous because explosive vapors can form without additional heating. MSDS for paints should note the flash point of each individual ingredient.

Flammable or explosive limits: The range of gas or vapor concentrations (usually expressed in percent by volume or ppm) that will burn or explode if a source of ignition (spark, flame, or cigarette) is present. A value of 1% by volume is equivalent to 10,000 ppm. LEL stands for "lower explosive limit" and UEL stands for "upper explosive limit." Air concentrations that fall between the LEL and UEL can lead to fires or explosions.

The LEL is usually several times higher than the Threshold Limit Value (TLV) (explained below). Generally, if the air concentration is at or below the TLV, fires and explosions will not occur. Likewise, air concentrations that are at or above the LEL may pose serious health risks, apart from fires.

Extinguishing media: What to use to put out a fire. The usual firefighting materials are water fog, foam, alcohal foam, carbon dioxide (CO552) and dry chemical. Some chemical fires require special firefighting materials.

Special firefighting procedures: This section should tell you if water will not put out a fire, and also may recommend special protective equipment.

Unusual fire and explosion hazards: This section may warn against certain combinations of substances or working conditions.

SECTION V - Health Hazard Data:

Although this section is very important it often does not include all the information an employee may need to know.

Threshold Limit Value (TLV): As mentioned above (p.) the ACGIH considers it the maximum safe concentration of a substance in air, over an 8-hour period. A TLV preceded by a "C" denotes a ceiling limit that should not be exceeded, even for a short time. Sometimes the notion "skin" follows the TLV, indicating that the material can enter the body through the skin, and exposure to skin should be avoided. The TLV is just a recommendation, and is not a proven safe level of exposure. For dusts, the units may be in milligrams of particulate per cubic meter of air (mg/m^3). For other air contaminants, such as gases, vapors, mists and fumes, the units may be in mg/m^3 or in parts per million parts of air (ppm).

If you know the molecular weight of the material, you can convert mg/m^3, into ppm or vice-versa. To convert mg/m^3 into ppm, multiply the number by 24.5 and divide by the molecular weight. To convert ppm into mg/m^3 multiply the number by the molecular weight and divide by 24.5. For some materials, the units may be expressed as micrograms per cubic meter (ug/m^3). A microgram is one-one thousandth of a milligram.

Not all chemicals have assigned a TLV.

Effects of overexposure: This section describes the most common effects seen shortly after exposure to the chemical, sometimes referred to as acute effects. Acute effects include dizziness, nausea or irritation. Too often MSDSs make little mention of possible chronic effects, those that may develop after many years of exposure or long after exposure (such as cancer or lung disease). But once you know the chemical identity of the substance, you can turn to other sources of information about the possible health effects.

Emergency and first aid procedures: The MSDS should describe first aid measures for exposure to the eyes, skin, through inhalation or by ingestion. For environmental problems, exposure to skin and by ingestion are particularly important. However, do not depend on this information. A doctor or nurse should be seen as soon as possible following any injury.

SECTION VI - Reactivity Data:

Stability: If the product is unstable, dangerous chemical reactions could occur under certain circumstances, which the MSDS should specify. This information is useful to evaluate where and how the product is stored.

Incompatibility: Chemicals or contaminants that should not come into contact with this substance.

Hazardous decomposition products: Heating (such as when welding) or burning the substance may release hazardous materials. This information is especially important for firefighters and community residents.

Hazardous polymerization: If the "may occur" box is checked, then special storage procedures must be followed. This section should explain what conditions should be avoided, and the shelf life of the substance.

SECTION VII - Spill or Leak Procedures:

Any special precautions should be explained, such as "avoid breathing gases and vapors, avoid contact with liquids," and so forth. This and the next section describe the types of exposure that are particularly dangerous, such as inhalation, ingestion, or skin exposure. Keep in mind that some materials can be ingested if it gets on your hands and you later smoke a cigarette or eat something without first washing your hands. This section should also describe the best methods for cleaning spills.

SECTION VIII - Special Protection Information: Equipment and ventilation procedures that should be used when working with the substance under typical conditions (not during emergencies or spills).

SECTION IX - Special Precautions: for any special precautions that may not have been discussed under another section.

For more information about how to read an MSDS is available from MassCOSH, Massachusetts Coalition for Occupational Safety and Health, 718 Huntington Avenue, Boston, 617-277-5022 or 617-277-0097.

Material Safety Data Sheet

Required under USDL Safety and Health Regulations for Shipyard Employment (29 CFR 1915)

U.S. Department of Labor
Occupational Safety and Health Administration

OMB No 1218-0074
Expiration Date 05/31/86

Section I

Manufacturer's Name

Emergency Telephone Number

Address (Number, Street, City, State, and ZIP Code)

Chemical Name and Synonyms

Trade Name and Synonyms

Chemical Family

Formula

Section II - Hazardous Ingredients

Paints, Preservatives, and Solvents	%	TLV (Units)	**Alloys and Metallic Coatings**	%	TLV (Units)
Pigments			Base Metal		
Catalyst			Alloys		
Vehicle			Metallic Coatings		
Solvents			Filler Metal Plus Coating or Core Flux		
Additives			Others		
Others					

Hazardous Mixtures of Other Liquids, Solids or Gases

	%	TLV (Units)

Section III - Physical Data

Boiling Point (°F)		Specific Gravity (H_2O=1)	
Vapor Pressure (mm Hg.)		Percent Volatile by Volume (%)	
Vapor Density (AIR=1)		Evaporation Rate _____ =1)	

Solubility in Water

Appearance and Odor

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	Lel	Uel

Extinguishing Media

Special Fire Fighting Procedures

Unusual Fire and Explosion Hazards

Section V - Health Hazard Data

Threshold Limit Value

Effects of Overexposure

Emergency First Aid Procedures

Section VI - Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable		

Incompatability (Materials to Avoid)

Hazardous Decomposition Products

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur		

Section VII - Spill or Leak Procedures

Steps to be Taken in Case Material is Released or Spilled

Waste Disposal Method

Section VIII - Special Protection Information

Respiratory Protection (Specify Type)

Ventilation	Local Exhaust	Special
	Mechanical (General)	Other

Protective Gloves	Eye Protection

Other Protective Equipment

Section IX - Special Precautions

Precautions to be Taken in Handling and Storing

Other Precautions

Topic 4: Labelling

The Right-to-Know Law requires that employers label containers so employees may learn about the potential health effects of the chemicals they handle. An employer must label each container in his workplace which contains a substance on the MSL, except in the following cases:

Exemptions: A container is exempt from the labelling requirements if it:

-- Is very small: less than or equal to 5 lbs (when full) or 1 gallon.

-- Is already labelled according to the federal labelling requirements of

  -- U.S. Department of Transportation (DOT)
  -- Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) (61 Stat. 163, 7 U.S.C. Sec. 121 et. seq.)
  -- Atomic Energy Act (AEA)
  -- Food, Drug and Cosmetics Act (FDCA)

-- Is a transfer vessel: holds ten gallons or less and is used only for transferring a substance, under the following conditions:

  (1) for immediate use (within the same work shift),
  (2) by the same employee doing the transferring,
  (3) from a container that is labelled.

-- Holds different substances on a regular basis (such as pipes, storage tanks, reaction vessels). For these containers, an employer may substitute signs, placards, or instructions for the labels. For pipes, make sure this substituted information is licated where the workers are likely to be exposed to the substance (such as at the valves or outfalls).

Labels must meet the following standards:

-- Location:	Prominent, easily read in its usual position.
-- Typeface:	Bold.
-- Legibility:	In English, on a contrasting background.
-- Weather Exposure:	If labels may be exposed to weather, labels must be able to withstand any adverse weather conditions.
-- Type Size:	3/16 in: over 1 gal or 5 lbs. 1/4 in: over 5 gal. or 30 lbs. 1/2 in: over 10 gal. or 100 lbs.

Topic 5: Employee Training

Training Requirements

The law requires that an employer provide his employees with information about the health risks of chemicals he is exposed to while performing his work.

General Requirements:

-- The information may be provided orally or in written form
-- Any information should be presented in a language that is understandable to the employee
-- An employer must also: provide his employees with a detailed explanation of their rights under the right-to-know law

Requirement About MSDS

For each employee, the employer should discuss a sample MSDS and the MSDS for each chemical to which the employee may be exposed including

i. chemical and common names
ii. location within the workplace
iii. first aid treatment with antidotes
iv. proper handling procedures
v. health effects

Requirements About Labels

For these same chemicals, an employer should explain how to interpret labels:

i. Explain the NFPA code: risk ratings, protective clothing, equipment, handling procedures, and use of hazardous chemicals.

ii. Explain the chronic health codes (C, M, T, and N), found on trade secret labels.

Requirement About Timing

Current employees must be trained by December 25, 1984, and annually thereafter.

New employees must be trained within 30 days of their employment.

Waiver of Labelling Requirements:

If it is impractical to label a container according to DLI's requirements, than an employer may request an exception.

NFPA Code

The label for every container which contains more than 5 gallons or 30 pounds of a substance on the MSL must also include the National Fire Protection Code (NFPA) for that substance (if one has been published).

The NFPA system consists of a diamond shaped figure divided into four sections: (1) flammability, (2) reactivity, (3) health hazards, (4) special information. Each section will have a number from 0 to 4 indicating the severity of the hazard: 0 is the least hazardous and 4 is the most hazardous. The section on special information will not contain a number but will be blank or include a special code. For example, a (W) with a line drawn through its center indicates that water should not be used on the material because of its reactive characteristics.

More information about the NFPA Code is available from the NFPA, 60 Battery March Street, Boston, MA (617) 770-3000.

Trade Secrets

As mentioned in Section II, an employer may withhold the chemical name from a label if that substance is a "trade secret." However, if the substance has been designated by DPH as a carcinogen, mutagen, neurotoxin or teratogen, then the label must include the appropriate code: "C", "M", "N", or "T".

Annual Training:

Employers should take the following steps each year:

-- Train employees starting one year from the initial training program.

-- Summarize all changes in the workplace, the new locations, revised MSDSs, trade secret claims denied, etc.--plus review the basics about health and safety for the chemicals each employee uses.

-- Make sure all workers have updated, complete information, including any revisions in procedures and addendums.

Topic 6: Trade Secrets

What is a trade secret?

A trade secret is any formula, pattern, device, or compilation of information which (a) an employer uses in his business and (b) which gives him an advantage over competitors who don't use it. If revealing the chemical name, common name, or CAS number of a substance would reveal the trade secret, then the law allows employers to treat the substance differently.

How are trade secret substances treated differently?

> Prepare a Trade Secret MSDS: Anyone claiming a trade secret must prepare an MSDS for that substance, even if it is a mixture.
>
> For the MSDS: The preparer may omit the chemical name, common name, and the CAS number, but must provide all other information.
>
> For Labels: The employer may omit the chemical name. But must include an MSDS identifier and if applicable, a chronic health indicator (C for carcinogens, N for neurotoxins, T for Teratogens, and M for mutagens).

Who can claim a Trade Secret?

> The Employer: Some employers may have processes which they consider trade secrets, and thus don't want to identify the chemicals used.
>
> For example, an employer may combine chemicals in a tank, so the tank must be labelled as a mixture -- listing the chemical names. However, if providing this information would reveal a trade secret (a formula, for example) the employer may want to claim the contents of that tank as a trade secret.
>
> A chemical producer may also claim a substance is a trade secret and supply a purchaser with a "trade secret" MSDS.
>
> An employer may claim a trade secret; his claim stands until DPH rules otherwise.

Topic 7: Mixtures

A mixture of hazardous substances is not subject to the Right-to-Know law if the quantity (weight or volume) of the hazardous substance equals the following:

1. If the substance is considered "extraordinarily hazardous," less than 1 part per million.

   An "extraordinarily hazardous substance" is one

   a. considered carcinogenic (it will have *C* after the chemical name on the MSL), OR

   b. listed in the Registry of Toxic Effects of Chemical Substances (published by National Institute of Occupational Safetyl and Health) as having

      i. a "Lethal Dose 50" of 50 micrograms or less per kilogram of body weight (i.e., the dose of the substance that will kill 50% of the test animals.
      ii. a "Lethal Concentration 50" of 50 parts per million or less (i.e., the concentration that will kill 50% of the test animals for a specific length of time).

   [Note: Massachusetts regulations now list the chemicals from these two lists that concern employers under Massachusetts Right-to-Know Law.]

2. If the substance is not "extraordinarily hazardous," then

   a. less than 1% of the hazardous substance;
   b. less than 2% if the hazardous chemical is an impurity.

If the mixture contains hazardous substances on the state's list above these thresholds, then it is subject to right-to-know requirements.

Mixtures can be manufactured or created in the workplace.

Labelling requirements for mixtures:

If the mixture is a Trade Secret:

-- An MSDS Identification Code, taken from the MSDS for the mixture.
-- A Chronic Health Code (C, N,L M, or T as is appropriate), if it applies to the mixture.
-- The appropriate NFPA code.

If the mixture is not a trade secret:

-- The chemical name for each hazardous substance it contains.

-- The appropriate NFPA Code, if applicable.

MSDS requirements for mixtures:

Most employers will provide a single MSDS on the mixture itself if certain conditions hold.

A mixture MSDS must identify

- the mixture's common name
- the chemical name, CAS number and percentage of each hazardous substance contained in the mixture, unless doing so would reveal a trade secret (if you omit the identifiers, explain why and add an MSDS Identification code).
- all of the other information required of any MSDS.

The MSDS for each constituent is available to employers, on request, although not within the four days provided for a mixture MSDS.

Topic 8: Employee Rights

The Right-to-Know Law is designed to protect employees and, as such, grants employees the following rights:

- Employers must inform employees about the specific health and safety effects of chemicals they handle. They may provide this information in written or oral form but it must be in non-technical language and understandable to the employee. Current employees must receive this information by December 25, 1984. New employees must receive this information within the first month they are at work.

  By September 26, 1984, an employer must make available to employees in a central location in the workplace a complete and up-to-date MSDS for each hazardous substance to which the employee may be exposed. If an employer has not received an MSDS from a suplier, but has made a diligent effort to obtain it, he has complied with the requirements of the law. "Diligent effort" means a prompt inquiry to the supplier for a copy of the MSDS, notification to DLI that the MSDS is unabailable, a second inquiry of the supplier, and finally a request of DLI for assistance in getting the MSDS.

  If an employee has not received an MSDS within four working days of the dte he submitted a written request to his employer (and the employer has not made diligent efforts to obtain a copy) the employee may refuse to work with the substance for which he has not received the MSDS. (Exception: public employees may not refuse to perform essential services.)

An employer must post a written notice in a central location in the workplace of employees' right to obtain an MSDS for any toxic or hazardous substance in the workplace to which the employee may be exposed.

Employees (or their physicians) may have access to the MSDS up to 30 years after the employer discontinues use of the substance.

An employee may not be discharged, disciplined or discriminated against in any way for exercising his rights under the Right-to-Know Law.

An employee who believes he has been discharged, received a cut in pay or denied benefits or seniority status because he has exercised his rights under the law may file a complaint with the Commissioner of DLI within 180 days of the disciplinary action. At the same time, he should provide his employer with a copy of the complaint, with a return receipt requested.

Topic 9: Additional Resources
Right-to-Know Contacts

Department of Labor and Industries
11th Floor 100 Cambridge Street
Boston, MA 02202

1. George W. Ripley, Commissioner
   (617) 727-3454
2. Joseph Belloli, right-to-Know Coordinator
   (617) 727-5816
3. Leonard Pagnotto, Director
   Division of Occupational Hygiene
   (617) 969-7178

Department of Public Health
150 Tremont Street
Boston, MA 02111

1. For questions concerning the Massachusetts Substance List of health effects, contact:

   Jan Sullivan
   Division of Health Assessments
   7th Floor
   (617) 727-2660

2. For questions concerning regulations and procedures, contact:

   Al Comproni
   Right-to-Know Coordinator
   10th Floor
   (617) 727-2660

3. To reach the Commissioner (or for directions to the appropriate person to answer a question):

   Bailus Walker, Commissioner
   (617) 727-2700

Department of Environmental Quality Engineering

1. For questions concerning the statue and regulations, contact:

   - Myra Schwartz, (617) 292-5764
   - Dean Spencer, Deputy General Counsel, (617) 292-5568

Department of Environmental Quality Engineering
One Winter Street
Boston, MA 02108

2. For questions concerning materials filed with DEQE, contact your appropriate regional environmental engineer:

A. Western Regional Office
4th Floor, State House West
436 Dwight Street
Springfield, MA 01103
(413) 785-5327
Reg. Env. Eng.: John H. Higgins

B. Central Regional Office
75B Grove Street
Worcester, MA 01605
(617) 792-7650; (617) 792-7653
Reg. Env. Eng.: Gilbert Joly

C. Northeast Regional Office
Five Commonwealth Avenue
Woburn, MA 01801
(617) 935-2160
Reg. Env. Eng.: William J. St. Hilaire

D. Southeast Regional Office
Lakeville Hospital
Lakeville, MA 02346
(617) 947-1231, ext. 680
Reg. Env. Eng.: Paul T. Anderson

NOTE: The Regional Environmental Engineer is the manager responsible for all DEQE operations at the regional office (i.e., air, water, hazardous waste, solid waste, right-to-know, etc.). It is unknown at this time exactly which individual within each regional office will be responsible for right-to-know activities.

Secretary of State's Office

1. Citizen Information Service

Within metropolitan Boston: 727-7030
Outside metropolitan Boston: 1-800-392-6089

All new regulations are filed with the Secretary of State's Office; staff working these phones can help you identify changes in regulations and acquire copies of them.

2. State House Book Store
Room 116, State House
Boston, MA 02133
727-2834

The Book Store is operated by the Secretary of State's Office, and sells copies of recent statutes and regulations.

Private Non-Profit Groups

1. National Paint and Coatings Association
1500 Rhode Island Avenue, NW
Washington, DC 20005
(202) 462-6272

2. National Fire Protection Association
Batterymarch Park
Quincy, MA 02269
(617) 770-3000

Massachusetts Coalition for Occupational Safety & Health

718 Huntington Avenue
Boston, MA 02115
(617) 277-0097
(Right to Know
277-5022)

458 Bridge Street
Springfield, MA 01103
(413) 732-2847

HEALTH AND SAFETY MATERIALS
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ASBESTOS DISEASE, ARE YOU COVERED? WIOES; (23 pp); $1.50 ea.	____	_____
ASBESTOS DUST - EVERYONE'S PROBLEM: WIOES; (25 pp), $2.00 ea.	____	_____
THE CASE OF THE WORKPLACE KILLERS - MANUAL FOR CANCER DETECTIVES ON THE JOB: UAW; (40pp); $1.00 ea.	____	_____
STRAINS & SPRAINS, A WORKER'S GUIDE TO JOB DESIGN: UAW(36pp) $1.00 ea.	____	_____
WHAT EVERY UAW REPRESENTATIVE SHOULD KNOW ABOUT HEALTH & SAFETY: UAW (32 pp) $1.00 ea.	____	_____
HEALTH PROTECTION FOR OPERATORS OF VDTs/CRTs: NYCOSH(16pp), $1.50	____	_____
HEALTH & SAFETY CONTRACT LANGUAGE FOR OPERATORS OF VDTs/CRTs: MassCOSH (6 pp), $1.50 ea. MassCOSH Members -$ 1.00	____	_____
OCCUPATIONAL HEALTH: A RESOURCE GUIDE: MassCOSH (28 pp), MassCOSH Members - $1.00; Others - $2.00	____	_____
RADIATION ON THE JOB: Coalition for Medical Rights of Women (57 pp), $ 2.50 ea.	____	_____
WELDING: HAZARDS & CONTROLS: Health & Safety Dept., IUE 201; (40 pp), $2.00 ea.	____	_____
UNMASKING THE HAZARDS: A WORKERS GUIDE TO HAZARDS IN THE ELECTRONICS INDUSTRY: Santa Clara COSH; (42 pp), $4.50 ea.	____	_____
TOXIC SUBSTANCES COMMONLY FOUND IN ELECTRONICS: GUIDE FOR HEALTH PROFESSIONALS: Santa Clara COSH; (164 pp), $7.50 ea.	____	_____
A JOB HEALTH & SAFETY BILL OF RIGHTS: PhilaPOSH, (32 pp), $3.00	____	_____
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____ Meat Wrappers/Handlers
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____ OSHA Inspections
____ Protective Clothing
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MassCOSH also has factsheets on individual substances such as : Ammonia, Carbon monoxide, Formaldehyde, Fiberglass, PCBs, Polyerethane, Mercury, TDI, Toluene, Sulfuric Acid, Xylene, and many many more. Most cost 35¢. Please call for information and specifics.

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AUDIO VISUAL RESOURCES - A wide range of excellent films, slide shows, and videotapes is available to rent. Rental fees range from $20.00-$50.00. Call for details.

LIBRARY - MassCOSH maintains an excellent library and research files with extensive bibliographies and referral lists, for your use. (Right to Know information: 277-5022)

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Information Sources for the Material Safety Data Sheet

The following are considered references for completing the information required on the Material Safety Data Sheet:

1. *ANSI Z87.1-1979, Practice for Occupational and Educational Eye and Fire Protection.*

   American National Standards Institute
   1430 Broadway
   New York, New York 10018

2. *Registry of Toxic Effects of Chemical Substances*, compiled by NIOSH

   Superintendent of Documents
   U.S. Government Printing Office
   Washington, DC 20402

3. *Dangerous Properties of Industrial Materials*, by N. Irving Sax

   Reinhold Publishing Corporation
   450 West 33rd Street
   New York, New York 10001

4. *Fire Protection Guide on Hazardous Materials*

   National Fire Protection Association, International
   Batterymarch Park
   Quincy, Massachusetts 02269

   This contains the following 5 texts:

   a) No. 325A *Flash Point Index of Trade Name Liquids*
   b) No. 325M *Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids*
   c) No. 49 *Hazardous Chemical Data*
   d) No. 491M *Manual of Hazardous Chemical Reactions*
   e) No. 704M *Recommended Systems for the Identification of the Fire Hazards of Materials*

5. *Handbook of Chemistry and Physics;* Most Recent Edition

   Chemical Rubber Company
   18901 Cranwood Parkway
   Cleveland, Ohio 44128

6. *Handbook of Organic Industrial Solvents* (Technical Guide #6)

   American Mutual Insurance Alliance
   20 North Wacker Drive
   Chicago, Illinois 60606

7. *Threshold Limit Values for Chemical Substance and Physical Agents in the Workroom Environment with Intended Changes*

   American Conference of Governmental Industrial Hygienists
   1014 Broadway
   Cincinnati, Ohio 45202
   Also available: *Documentation of TLV's*

8. *Material Safety Data Sheet Instruction Booklet*

   U.S. Department of Labor
   Bureau of Labor Standards
   Washington, DC 20210
   (Also available from Department of Labor regional offices.)

9. *MIL-STD-1314A, Symbols for Packages and Containers for Hazardous Industrial Chemicals and Materials*

   Naval Supply Depot
   5801 Tabor Avenue
   Philadelphia, Pennsylvania 19120

10. *General Industry Safety and Health Standards OSHA 2206 (29 CFR 1910)*

    Superintendent of Documents
    U.S. Government Printing Office
    Washington, DC 20402

11. *Raw Materials Index*, Solvent Section

    National Paint and Coatings Association
    1500 Rhode Island Avenue, N.W.
    Washington, DC 20005

12. *NIOSH Certified Personal Protective Equipment (Report 75-119) and Supplements*

    NIOSH
    U.S. Department of Health, Education and Welfare
    Division of Technical Services
    Robert A. Taft Laboratories
    4676 Columbia Parkway
    Cincinnati, Ohio 45226

Reprinted with permission of the National Paint and Coatings Association, Washington, D.C.

13. *U.S. Department of Army Pamphlet 385-3, Protective Clothing and Equipment*—August 1968

U.S. Army Publication Agency
Nassif Building, Room 524
5611 Columbia Pike
Washington, DC 20315

14. *American Industrial Hygiene Association Hygiene Guide*

American Industrial Hygiene Association
66 S. Miller Road
Akron, Ohio 44313

15. *Industrial Hygiene and Toxicology*, by F.A. Patty

Vol. I General Principals– most recent edition
Vol. II Toxicology - most recent edition
John Wiley and Sons, Inc.
New York, New York

16. *Industrial Ventilation—A Manual of Recommended Practice*, most recent edition

Prepared by ACGIH—Industrial Ventilation Committee
American Conference of Governmental Industrial Hygienists
1014 Broadway
Cincinnati, Ohio 45202

17. *Paint Industry Labeling Guide*—most recent edition

National Paint and Coatings Association
1500 Rhode Island Avenue, N.W.
Washington, DC 20005

18. *HMIS Rating Manual*

National Paint and Coatings Association
Rhode Island Avenue, N.W.
Washington, D.C. 20005

19. *Clinical Toxicology of Commercial Products*, by M.N. Gleason

The Williams and Wilkins Company
428 E. Preston Street
Baltimore, Maryland 21202

20. *Chemical Safety Slide Rule, Stock #129.91*

National Safety News
425 N. Michigan Avenue
Chicago, Illinois 60611

21. *Condensed Chemical Dictionary*, by Arthur and Elizabeth Rose

Reinhold Publishing Corporation
450 West 33rd Street
New York, New York 10001

22. *Handbook of Laboratory Safety*, by Norman V. Steere

Chemical Rubber Company
18901 Cranwood Parkway
Cleveland, Ohio 44128

23. *The Merck Index*

Merck and Company, Inc.
126 E. Lincoln Avenue
Rahway, New Jersey 07065

24. *Perry's Chemical Engineers Handbook*

McGraw-Hill Book Company
Distribution Center
Princeton Road
Hightstown, New Jersey 08520

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NATIONAL PAINT & COATINGS ASSOCIATION'S

Hazardous Materials Identification System's Revised

RAW MATERIALS RATING MANUAL

National Paint & Coatings Association
1500 Rhode Island Avenue, NW
Washington, DC 20005
202/462-6272

Summer 1983

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II. Toxicology of Specific Chemicals or Classes

A. Aromatic Hydrocarbons

GERARDE, H. W., TOXICOLOGY AND BIOCHEMISTRY OF AROMATIC HYDROCARBONS, Elsevier Publishing Co., N.Y. (1960).

II. TOXICOLOGY OF SPECIFIC CHEMICALS OR CLASSES (continued)

B. Asbestos

MICHAELS, L. and S. S. Chissick, eds. ASBESTOS. VOL. 1: Properties, Applications, and Hazards, John Wiley and Sons, N.Y. (1979).

SELIKOFF, I. J., ASBESTOS AND DISEASE, Academic Press, N.Y. (1978).

C. Fluorine and Compounds

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- CHROMIUM

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- COPPER

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- IRON

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D. Metals (continued)

b) Specific Metals (continued)

• LEAD

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• MANGANESE

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• MERCURY

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SELENIUM

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TOXIC MATERIALS NEWS, Business Publication Inc., P.O. Box 1067 Silver Spring, MD 20910. Weekly.

XII. Online Computer Data Bases

A. Chemical Dictionary Files

- Chemline—National Library of Medicine, Bethesda, MD 20014
- Chemname—Lockheed Missiles and Space Co., 3251 Hanover St., Palo Alto, CA 94304
- Chemdex—Systems Development Corporation (SDC), 2500 Colorado Ave., Santa Monica, CA 90406

B. Bibliographic and Data Files

- Toxline®—National Library of Medicine, Bethesda, MD 20014. Includes references to published information on toxicology, environmental effects of chemicals and pollutants, and analytical methods. Citations are taken from a variety of secondary sources: Chemical Abstracts, Abstracts on Health Effects of Environmental Pollutants. Toxicity Bibliography, International Pharmaceutical Abstracts, Hayes File on Pesticides, Environmental Mutagen Information Center File, Toxic Materials Information Center File, Environmental Teratology Information Center File, the Teratology File, and Toxicology and Epidemiology Research Projects Directory.
- Oil and Hazardous Materials—Technical Assistance Data System (OHM-TADS)—Informatics, Inc. 6000 Executive Blvd., Rockville, MD 20852. Supplied by EPA, the file contains toxicity data summaries on about 1,000 substances, primarily as related to effects on water quality in the event of a spill.
- Registry of Toxic Effects of Chemical Substances (RTECS)—National Library of Medicine (use data with caution).
- Toxicology Data Bank—National Library of Medicine.
- Cancerline—National Library of Medicine.
- Chemical Abstracts—Lockheed; (address above) Systems Development Corp., (address above) or Bibliographic Retrieval Services, Inc., 1462 Erie Boulevard, Schenectady, N.Y. 12305.

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